



DESIGN CHANGE APPROVAL APPLICATION

DEMANDE D'APPROBATION D'UNE MODIFICATION DE LA CONCEPTION

Legal name and address of applicant Nom et adresse légal du demandeur		Legal name and address of prospective holder Nom et adresse légal du titulaire éventuel		Name and address for billing purposes (if different than applicant) Nom et adresse aux fins de facturation (si différent du demandeur)	
Aero Design Ltd. 9888A Malaspina Road Powell River, BC, Canada V8A 0G3		Aero Design Ltd. 9888A Malaspina Road Powell River, BC, Canada V8A 0G3			
Identification of aeronautical product / Identification du produit aéronautique					
Make / Marque		Model / Modèle		Registration / Immatriculation	
Airbus Helicopters		AS355		All eligible	
				Serial No. / N° du série	
				All eligible	
				Part No. / N° de la pièce	
Request for (check appropriate box) / Objet de la demande (Cochez les carrés selon le cas)				Type Design Examination by Foreign Authority Examen de la définition de type par autorité étrangère	
<input type="checkbox"/> STC CTS				<input type="checkbox"/> Repair Design Approval (RDA) Approbation de la conception de réparation (ACR)	
<input type="checkbox"/> STC (single serial number) CTS (numéro de série simple)				<input type="checkbox"/> Repair Design Approval - Process Repair ACR - Processus de réparation	
<input type="checkbox"/> STC (multiple serial numbers) CTS (numéros de série multiples)				<input type="checkbox"/> Part Design Approval (PDA) Approbation de la conception de pièce (ACP)	
<input type="checkbox"/> Type Certificate Revision Revision de certificat de type				<input checked="" type="checkbox"/> Application to a foreign authority is requested La demande à une autorité étrangère est demandée.	
<input checked="" type="checkbox"/> Revision Révision				<input type="checkbox"/> Type design examination of foreign change Examen de la définition de type modification étrangère	
No. N° SH09-38				Identify Identifier EASA - new STC	
Current Issue Édition active 4					
<input type="checkbox"/> Restricted Category Catégorie restreinte					
Type of Operation Type d'opération					
Title and brief description of modification, repair or replacement part, including effects of changes (use additional pages if necessary). Refer to CAR 521.155(b)(i) for details. Titre et brève description de la modification, de la réparation ou de la pièce de rechange, y compris les effets des changements (utiliser des feuilles supplémentaires si nécessaire). Référez-vous à RAC 521.155(b)(i) pour des détails.					
Installation of quick release maintenance step on mounting provisions installed in accordance with STC SH08-16; installation of maintenance peg step on aft cross tube; installation of fixed cabin steps on landing gear					
Applicable Type Certificate (TC) / Certificat de type (CT) pertinent					
TC No. / N° de CT		Issue No. / N° de l'édition		Identify State of Design / Identifier l'état de conception	
H-87 (R.146)		10 (6)		EASA	
The applicant is responsible for the control of product manufacture / Le demandeur est responsable du contrôle de la fabrication du produit					
<input checked="" type="checkbox"/> Yes Oui					
<input type="checkbox"/> No Non					
If no, identify who is responsible Si non, identifier qui est responsable					
Documentation to be submitted Documentation à soumettre				Applicant Demandeur	
				Submitted Soumis	
				Yes Oui	
				No Non	
Proposed certification basis Proposition de base de certification					
Certification plan in accordance with CAR 521.155(d) Plan de certification selon RAC 521.155(d)					
Applicant's remarks / Remarques du demandeur					
Application to EASA for a new STC. Identical to EASA STC 10060496.					
I hereby certify that the information contained herein is correct and complete. I agree to pay charges as prescribed in Part 1, Subpart 4 of the CARs (CAR 104-Charges). Je certifie que les renseignements figurant ci-dessus sont exacts et complets. Je m'engage à payer les redevances prescrites à la sous-partie 4 de la partie I du RAC (sous-partie 104 du RAC - Redevances).					
JEFF CLARKE		VICE PRESIDENT		2018-12-03	
Name and Signature of Applicant / Nom et signature du demandeur		Title / Poste		Date (yyyy-mm-dd) / Date (aaaa-mm-jj)	



Application for Approval of Supplemental Type Certificate

Data protection: Personal data included in this application is processed by EASA pursuant to Regulation (EC) No 45/2001 on the protection of individuals with regard to the processing of personal data by the Community institutions and bodies and on the free movement of such data. It will be processed solely for the purposes of the performance, management and follow-up of the Application by the Agency, without prejudice to possible transmission to internal audit services, to the Court of Auditors, to the European Anti-Fraud Office (OLAF) for the purposes of safeguarding the financial interests of the European Union. The Applicant shall have the right of access to his personal data and the right to rectify any such data that is inaccurate or incomplete. Should the Applicant have any queries concerning the processing of his personal data, he shall address them to the Agency at the following address: dpo[at]easa.europa.eu. The Applicant shall have right of recourse at any time to the European Data Protection Supervisor.

1. Applicant's Reference

1.1 Your Reference

827

2. Applicant Address and Contact Data

2.1 Applicant Data

2.1.1 Name and Address (registered (business) name and address/legal seat of the company)

Applicant Number

300116

(A)DOA Reference

(Company) Name

Aero Design Ltd.

Street / Nr

9888A Malaspina Road

Post Code

V8A 0G3

City

Powell River, BC

Country

Canada

2.1.2 Contact Person (responsible for this application)

Title

☒ Mr ☐ Ms

Name

Clarke

First name

Jeff

Job title

Engineering Technologist

Phone/Fax

Phone: 604-483-2376

Fax: 604-483-2372

Email

jeff@aerodesign.ca

Important Note: First time applicants need to submit a copy of the company's **Business Registration** or similar legal document stating name and seat of the company together with the application. In case the applicant is not a company but a natural person, a copy of the person's **ID or passport** needs to be provided with the first application.

2.2 Billing Data (may be left blank, if same as 2.1 Applicant Data)

2.2.1 Billing Address

(For the receipt of EASA Fees and Charges Invoices. EASA invoices are issued via post-mail to the address provided here.)

(Company) Name

Same as in section 2.1.1 (other name only in exceptional cases)

Street / Nr

PO Box

Post Code

City

Country

2.2.2 Contact Person

(Responsible for ensuring the EASA terms of payment are honoured. An electronic invoice copy will be issued to the email address indicated here.)

Title

☐ Mr ☒ Ms

Name

Rekve

First name

Wanda

Job title

Office Manager

Phone/Fax

Phone: 604-483-2376

Fax: 604-483-2372

Email

wanda@aerodesign.ca

**Application for Approval of Supplemental Type Certificate****2.3 Shipping Data** (may be left blank, if same as 2.1 Applicant Data)**2.3.1 Certificate Delivery Address** (for the shipping of original EASA documents)

(Company) Name

Street / Nr

PO Box

Post Code

City

Country

2.3.2 Contact Person (Shipping)

Title

☐ Mr ☐ Ms

Name

First name

Job title

Phone/Fax

Email

**Application for Approval of Supplemental Type Certificate****3. Identification of Activity****Supplemental Type Certificate**

- ☒ Simple
☐ Standard
☐ Complex

For **revisions** to an STC, please complete an Application for **Major Change/Major Repair Design** or **Minor Change/Minor Repair Design**, as applicable.

For a **transfer** to a new STC holder, please complete an Application for **Transfer of Certificate**.

Including change to approved parts of Flight Manual (FM)

- ☒ Yes
☐ No

4. Product Identification**4.1 Fees & Charges Information****Large Aeroplanes**

- ☐ > 150 000 kg
☐ > 50 000 kg ≤ 150 000 kg
☐ > 22 000 kg ≤ 50 000 kg
☐ > 5 700 kg ≤ 22 000 kg (excluding commuter)

General Aviation

- ☐ > 5 700 kg ≤ 22 000 kg (including commuter)
☐ > 2 000 kg ≤ 5 700 kg
☐ ≤ 2 000 kg
☐ High Performance Aircraft (≤ 5 700 kg)
☐ Very Light Aeroplane
☐ Powered Sailplane
☐ Sailplane
☐ Light Sport Aeroplane

Rotorcraft, Balloons & Airships

- ☐ Large Rotorcraft
☒ Medium Rotorcraft
☐ Small Rotorcraft
☐ Very Light Rotorcraft
☐ Balloon
☐ Large Airship
☐ Medium Airship
☐ Small Airship

Propulsion

- ☐ Turbine Engine > 25 kN take-off thrust
☐ Turbine Engine ≤ 25 kN take-off thrust
☐ Turbine Engine > 2000 kW take-off power
☐ Turbine Engine ≤ 2000 kW take-off power
☐ Non-Turbine Engine
☐ CS-22.H, CS VLR App. B Engine
☐ Propeller for use on aircraft > 5 700 kg MTOW
☐ Propeller for use on aircraft ≤ 5 700 kg MTOW
☐ CS-22J Class Propeller
☐ APU (Parts & Appliances)

4.2 Applicability

Type Certificate Number

EASA.IM.R.146; FAA H11EU; TCCA H-87

Type Certificate Holder

Airbus Helicopters

Type Name

AS355

Model(s)

E, F, F1, F2, N, NP

4.3 Airworthiness Code

CS-27

**Application for Approval of Supplemental Type Certificate**

4.4 European Light Aircraft	<input type="checkbox"/> Non-ELA	<input type="checkbox"/> ELA 1 <input type="checkbox"/> ELA 2	please consult the completion instructions for definitions of ELA 1 and ELA 2 aircraft
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5. Original Approval(if applicable)

5.1 Third Country Approval/Project N°	Approval/Project Number	SH09-38, Issue 4
	Issued by	Transport Canada
	Issued on	10 February 2015

6. Description

6.1 Title	Installation of Quick Release Maintenance Step; Installation of Maintenance Peg Step; Installation of Fixed Cabin Step
6.2 Description	Installation of maintenance step on mounting provisions installed in accordance with TCCA STC SH08-16 (EASA STC application submitted). Installation of maintenance peg step on aft cross tube. Installation of fixed cabin steps on landing gear.
6.3 Affected Areas (including manuals)	See Certification Plan CP827, revision 1; Flight Manual Supplement FMS827.90 (Quick Release Maintenance Steps), Instructions for Continued Airworthiness ICA827.91 (Quick Release Maintenance Steps), ICA827.92 (Fixed Cabin Steps), ICA827.93 (Maintenance Peg Step)
6.4 Re-Investigations	None
6.5 Justification	Transport Canada has issued an STC Identical to EASA STC 10060496

7. Part 21 demonstration of eligibility**I declare that this application is:**

<input type="checkbox"/> Within the current approved scope of work of the applicant's DOA/ADOA		
<input type="checkbox"/> Undertaken by another person than the applicant for, or holder of, a certificate (Part 21.A.2)	Name	(Company) Name
	DOA/ADOA N°	DOA/ADOA N°
<input type="checkbox"/> Following an application for Design Organisation Approval (FO.DOA.00080) or Alternative Procedures to Design Organisation Approval (FO.DOA.00081).	Application Date	
	Project N°	if known
<input type="checkbox"/> Following an application for a change to the scope of work via EASA Form FO.DOA.00081 or FO.DOA.00082.	Application Date	
	Project N°	if known
<input checked="" type="checkbox"/> Without DOA/ADOA		
<input type="checkbox"/> Use of Article 8.2 of Regulation 748/2012		



Application for Approval of Supplemental Type Certificate


- | | |
|-------------------------------------|--|
| <input type="checkbox"/> | Covered by a Certification Programme in accordance with 21.A20(c) for ELA 1 aircraft or engine/propeller installed on an ELA 1 aircraft. |
| <input checked="" type="checkbox"/> | Bilateral Agreement/Working Arrangement is in force |

**Application for Approval of Supplemental Type Certificate****8. Applicant's declaration and acceptance of the General Conditions and Terms of Payment**

I declare that I have the legal capacity to submit this application to EASA and that all information provided in this application form is correct and complete.

I have understood that I am submitting an application for which fees or charges will be levied by EASA in accordance with Commission Regulation (EC) on the fees and charges levied by the European Aviation Safety Agency, as last amended and available from <http://easa.europa.eu/> > Legislation > Fees & Charges.

I acknowledge that I have read and understood the Agency's Terms of Payment (see <http://easa.europa.eu/> > Legislation > Fees & Charges > General Conditions and Terms of Payment) and agree to abide by them. I declare to be aware that fees or charges, as well as all relevant travel costs must be paid whether or not the application is successful and that they might not be refundable. Moreover, I declare that I am aware of the consequences of non-payment.

2018-12-03 POWELL RIVER, BC, CANADA	JEFF CLARKE VICE PRESIDENT	
Date/Location	Name	Signature

Important Note: EASA cannot accept applications without signature. Please make sure that you sign the application.

This Application should be sent by fax, e-mail or regular mail to:

European Aviation Safety Agency
Applications and Outsourcing Services Department
Postfach 10 12 53
D-50452 Köln
Germany

Fax: +49 – (0)221 - 89990 ext. 4458
E-mail: STC@easa.europa.eu

Completion Instructions

Please double-click on the icon to access the completion instructions



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Hawkesbury, ON, K6A 1K7
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INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ICA-D205-633

*Heli-Access-Step*TM

BELL 205/212/214/412 MODELS

CANADA	
DEPARTMENT OF TRANSPORT	
AIRCRAFT CERTIFICATION	
BRANCH	
OCT 24 2002	
ACCEPTED	
BY	<i>Alex Provenal</i>
NAPA NO	0-02-0591
CERT/ISSUE NO.	5496-57, 1654e3

Prepared By:

C. Provencal
Mechanical Designer

Checked By:

D. Shepherd, P. Eng.
DE #02

Released By:

D. Shepherd, P. Eng.
DE #02

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Revision: 0

REVISION RECORD

Revision No.	Issue Date	Description	Date Inserted	Inserted By
0	02.06.18	New Issue		

TC Accepted

OCT 24 2002

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Revision: 0

LIST OF EFFECTIVE PAGES

DESCRIPTION	PAGE(S)	REVISION
COVER	1, 2 BLANK	0
REVISION RECORD	3, 4 BLANK	0
LIST OF EFFECTIVE PAGES	5, 6 BLANK	0
TABLE OF CONTENTS	7, 8 BLANK	0
CHAPTER 0 – INTRODUCTION	9,10 BLANK	0
CHAPTER 0 – INTRODUCTION	11,12 BLANK	0
CHAPTER 4 – AIRWORTHINESS LIMITATIONS	13,14 BLANK	0
CHAPTER 5 – INSPECTION REQUIREMENTS	15,16 BLANK	0
CHAPTER 5 – INSPECTION REQUIREMENTS	17,18 BLANK	0
CHAPTER 25 –EQUIPMENT AND FURNISHINGS	19,20 BLANK	0
CHAPTER 25 –EQUIPMENT AND FURNISHINGS	21,22 BLANK	0
CHAPTER 25 –EQUIPMENT AND FURNISHINGS	23,24 BLANK	0
CHAPTER 25 –EQUIPMENT AND FURNISHINGS	25,26 BLANK	0
CHAPTER 25 –EQUIPMENT AND FURNISHINGS	27,28 BLANK	0
CHAPTER 25 –EQUIPMENT AND FURNISHINGS	29,30 BLANK	0
CHAPTER 25 –EQUIPMENT AND FURNISHINGS	31,32 BLANK	0

Transport Canada Accepted: _____ Date: _____

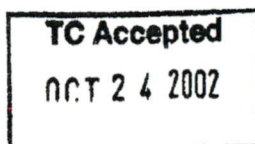


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APPENDIX A: APPROVALS

TC Accepted OCT 24 2002
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TC Accepted**NOV 24 2002****CHAPTER 0 – INTRODUCTION (00-00-00)****0.1 SCOPE**

This manual provides the requirements set forth in Appendix A of FAR Part 29 for the Instructions for Continued Airworthiness of the Dart D205-633 *Heli-Access-Step™* installations when installed on the Bell 205/212/214/412 model aircraft. These Instructions for Continued Airworthiness are to be referred to for inspection and maintenance when the Dart steps are installed on, removed from, or in service on the rotorcraft.

0.2 ARRANGEMENT

The manual is arranged in ATA-100 format. This manual is only applicable to the Bell 205/212/214/412 model rotorcraft modified with the Dart D205-633 *Heli-Access-Step™* installations.

There are no abbreviations, acronyms, or symbolization, which are not common to the aviation industry in this manual.

Units of measurement are expressed in Imperial and metric values and all torque values are standard values for the specified fastener combinations as defined in FAA AC 43.13, unless specified in this document.

No other Instructions for Continued Airworthiness for any product or appliance is inferred or addressed herein.

0.3 DISTRIBUTION

Any changes in the content or revision level of this document will be made available to any owner/operator who possesses this STC when requested in writing. Requests should be made to:

Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
CANADA
Fax: (613) 632 4443
Email: heli@dartaero.com

Additionally, any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this manual.

0.4 COMPATIBILITY

Compatibility of this installation has been shown with the D205-523 rappel installations approved per Canadian STC SH96-90 (ref. FAA STC SR00511NY/512NY/513NY). Compatibility of this installation with other kits is the **responsibility of the installer**. Ensure that this installation does not conflict with a previous modification.

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00-00-00

0.5 SYSTEM DESCRIPTION

The Dart **Heli-Access-Step**™ Installations are approved on the Bell 205/212/214/412 Rotorcraft, and it is recommended that they be installed in combination with the following landing gear:

DART INSTALLATION	A/C	Landing Gear
D205-633-011	205 / 212 / 214 / 412	standard high gear
D205-633-013	205 / 212	D205-594-013
D205-633-015	205 / 212	D205-594-011

The components in the Dart **Heli-Access-Step**™ Installations are as defined in the parts list in section 25 of this document. The last 3 digits of the Dart **Heli-Access-Step**™ Installation Part No. designate the different Dart Installations. For convenience, only the last three digits of the Part No. are listed on the top row of each table. The quantity of each component which is included in the D205-633-011 Step Installation, for example, is as defined in the column labeled -011.

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CHAPTER 4 – AIRWORTHINESS LIMITATIONS (04-00-00)

No airworthiness limitations associated with this type design change.

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CHAPTER 5 – INSPECTION REQUIREMENTS (05-00-00)**5.1 DAILY INSPECTION**

1. Inspect the D205-633-011/-013/-015 installations for physical integrity, security, damage, and excessive wear. If damage or excessive wear is found, perform the detailed 300 hour inspection.

5.2 300 HOUR INSPECTION

(To coincide with rotorcraft airframe inspection or if damage found on Daily Inspection)

Note: For the convenience of scheduling maintenance, the tolerance for scheduled inspection intervals is +/-10% (+/- 30 hours). In each case, the subsequent interval will be adjusted to re-establish the original schedule. When an inspection is done more than 10% early, subsequent inspections will be advanced as required not to exceed the maximum tolerance.

1. Inspect the step installation for corrosion and mechanical damage per the following table. Replace parts that have been damaged beyond limits per item 6.

Table 5-1: Damage Limits

Part	Type of Damage	Max Allowable	Repair
D2563 Step Weldment	Corrosion	2"x2"x0.010" deep (51mm x 51mm x 0.25mm). Must be 2" (51mm) away from nearest damaged region.	Blend up to 0.010" (0.25mm) deep with scotchbrite.
	Scratches / Nicks	0.010" (0.25mm) deep x 1" (25mm) long. Must be 2" (51mm) away from nearest damaged region.	Blend up to 0.010" (0.25mm) deep with scotchbrite.
	Cracks / Dents	None	N/A
	Bent lugs	None	N/A
	Hole elongation	0.025" (0.64mm) across hole diameter	None
	Permanent bow of step	0.25" (6.4mm) max near middle of step	None
D2562-XXX Struts D2565-XXX Struts D3165-1 Support Arm	Corrosion	0.010" (0.25mm) deep	Blend up to 0.010" (0.25mm) deep with scotchbrite.
	Scratches / Nicks	0.010" (0.25mm) deep x 0.5" (12.7mm) long	Blend up to 0.010" (0.25mm) deep with scotchbrite.
	Cracks / Dents / Bends	None	N/A
	Hole elongation	0.025" (0.64mm) across hole diameter	None

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2. Inspect the step welds for signs of cracking. Cracks up to 0.25" (6.35mm) long may be repaired as follows:
 - a) Clean area of paint, etc,...
 - b) Grind away weld in area of crack.
 - c) T.I.G. weld per MIL-STD-2219/AMS-STD-2219 Class "C" using 5356 filler rod. Do not grind flush.
 - d) Touch up finish per item 3.
3. Inspect all areas of the D2563 step weldment for suitability of the paint finish and the anti-skid surface. Touch up affected areas with chemical film material (Alodine 1200 or 1201) per MIL-C-5541, one coat of MIL-P-85582 or MIL-P-23377 primer, and 2-3 coats of MIL-C-85285 polyurethane paint to match original finish. Clean off flaking anti-skid and touch up with Black Anti-Skid paint per MIL-W-5044 Type 2. Inspect the struts for suitability of the paint finish and touch up as required with one coat MIL-P-85582 or MIL-P-23377 primer, and 2-3 coats of MIL-C-85285 polyurethane paint to match original finish.
4. Inspect all hardware for suitability for continued service. Replace as required per item 6. Check torque on all hardware.
5. Inspect the condition of the aircraft hardpoints in accordance with the Aircraft Maintenance Manual.
6. Replace damaged or excessively worn parts per Chapter 25 of these instructions.

5.3 OVERHAUL REQUIREMENTS

NO OVERHAUL REQUIREMENTS ASSOCIATED WITH THIS DESIGN CHANGE.

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5.0 LOADS

5.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is located external to the cabin. It cannot be reached to be occupied in flight, therefore the maneuvering loads applied are only due to the step weight itself (4.2 lbs).

$$W_{\text{step}} = 4.2 \text{ lbs}$$

Weight of step (maintenance step)

$$n_{\text{man_pos}} = 3.5$$

27.337)

Limit positive maneuvering load factor (Ref: FAR

$$n_{\text{sf}} = 1.5$$

Safety Factor (Ref: FAR 27.303)

$$n_{\text{ult_man_pos}} = n_{\text{man_pos}} \times n_{\text{sf}}$$

$$n_{\text{ult_man_pos}} = 3.5 \times 1.5 = 5.25$$

Ultimate positive maneuvering load factor

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 33.6 \text{ lbs}$$

Ultimate positive maneuvering load

5.2 Fixed Cabin Steps

5.2.1 Inertia Loads

$$W_{\text{step}} = 8.8 \text{ lbs}$$

Weight of full length step (82709-01)

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 46.2 \text{ lbs}$$

Ultimate positive maneuvering load

The cabin steps are not intended to be used in flight. As such, there is no requirement for the application of maneuvering inertia loads due to a person on the step. However, the step is checked for ultimate inertia load applied by one person to allow for the possibility of use during rappel or similar operations.

$$W_{\text{person}} = 170 \text{ lbs}$$

Weight of person

$$P_{\text{ult_man_pos}} = W_{\text{person}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 892.5 \text{ lbs}$$

Ultimate positive maneuvering load applied to step by 1 person

Full length
73 bags
all we have
180/190 up @
Centre

1000 lb = 40 bags

Long Step 50 bags
1250 lbs ult.
slight bow in side plates
No failure

5.2.2 Aerodynamic Loads

Drag

$$A_f := 19.0 \text{ in}^2$$

Frontal Area of Fixed Cabin Steps

$$V_{ne} := 155 \text{ knots}$$

Never Exceed Speed of AS350/AS355/EC135
(Highest of all models)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 172.2 \text{ knots}$$

Design Dive Speed

$$\rho := 0.002378 \frac{\text{slug}}{\text{ft}^3}$$

Air Density at Sea Level

$$C_{Do} := 2.0$$

Coefficient of Drag (conservative)

$$P_{\text{drag}} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{Do}$$

$$P_{\text{drag}} = 26.5 \text{ lbf}$$

Limit drag at V_d

$$n_{sf} := 1.5$$

Factor of Safety

$$P_{\text{drag_ult}} := P_{\text{drag}} \cdot n_{sf}$$

$$P_{\text{drag_ult}} = 39.7 \text{ lbf}$$

Ultimate drag at V_d

Lift

$$A_{\text{lift}} := 3.28 \text{ in} \cdot 119 \text{ in}$$

$$A_{\text{lift}} = 390.3 \text{ in}^2$$

Planar area of step (full length step, 82709-01)

Coefficient of lift for round tubes relative to airflow varies from near 0 at 0° to 0.4 at about 60° .

$$C_L := 0.4$$

Coefficient of lift (Max. for a round tube, $\sim 60^\circ$ to air flow)
(ref: Hoerner, Fig. 18)

$$P_{\text{lift}} := C_L \cdot \frac{\rho}{2} \cdot V_d^2 \cdot A_{\text{lift}}$$

$$P_{\text{lift}} = 108.8 \text{ lbf}$$

Limit lift on step at V_d

$$P_{\text{lift_ult}} := P_{\text{lift}} \cdot n_{sf}$$

$$P_{\text{lift_ult}} = 163.2 \text{ lbf}$$

Ultimate lift on step at V_d

5.0 LOADS

5.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is located external to the cabin. It cannot be reached to be occupied in flight, therefore the maneuvering loads applied are only due to the step weight itself (6.4 lbs).

$$W_{\text{step}} = 6.4 \text{ lbs}$$

Weight of step (maintenance step)

$$n_{\text{man_pos}} = 3.5$$

Limit positive maneuvering load factor (Ref: FAR 27.337)

$$n_{\text{sf}} = 1.5$$

Safety Factor (Ref: FAR 27.303)

$$n_{\text{ult_man_pos}} = n_{\text{man_pos}} \times n_{\text{sf}}$$

$$n_{\text{ult_man_pos}} = 3.5 \times 1.5 = 5.25$$

Ultimate positive maneuvering load factor

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 33.6 \text{ lbs}$$

Ultimate positive maneuvering load

5.2 Fixed Cabin Step

5.2.1 Inertia Loads

$$W_{\text{step}} = 8.0 \text{ lbs}$$

Weight of step (high mounted cabin step)

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 42 \text{ lbs}$$

Ultimate positive maneuvering load

The step is not intended to be used in flight. As such, there is no requirement for the application of maneuvering inertia loads due to a person on the step. However, the step is checked for ultimate inertia load applied by one person to allow for the possibility of use during rappel or similar operations.

$$W_{\text{person}} = 170 \text{ lbs}$$

Weight of person

$$P_{\text{ult_man_pos}} = W_{\text{person}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 892.5 \text{ lbs}$$

Ultimate positive maneuvering load applied to step by 1 person

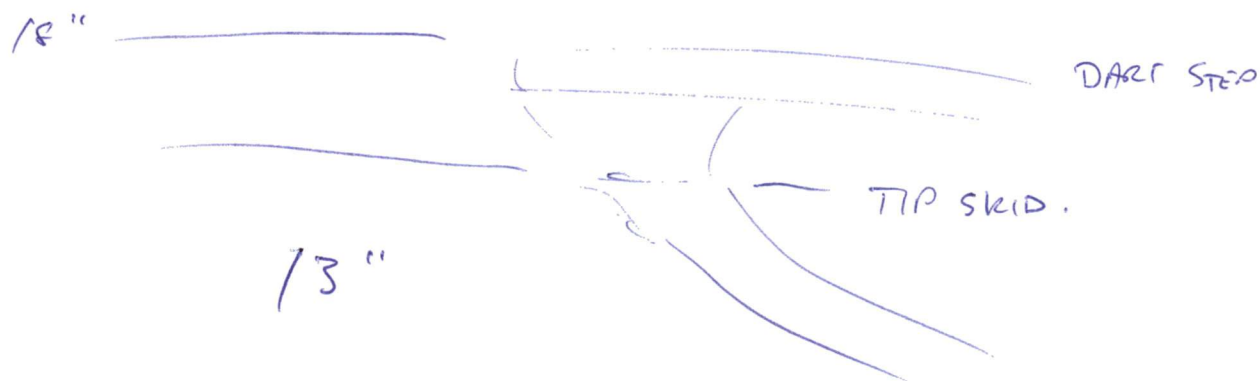
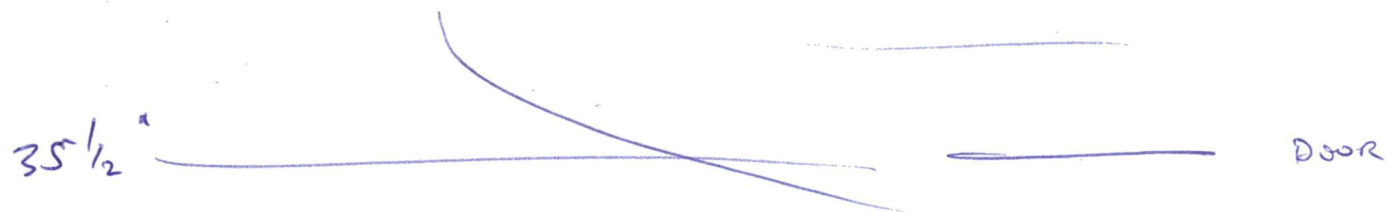
600 lb OK

800 lb OK

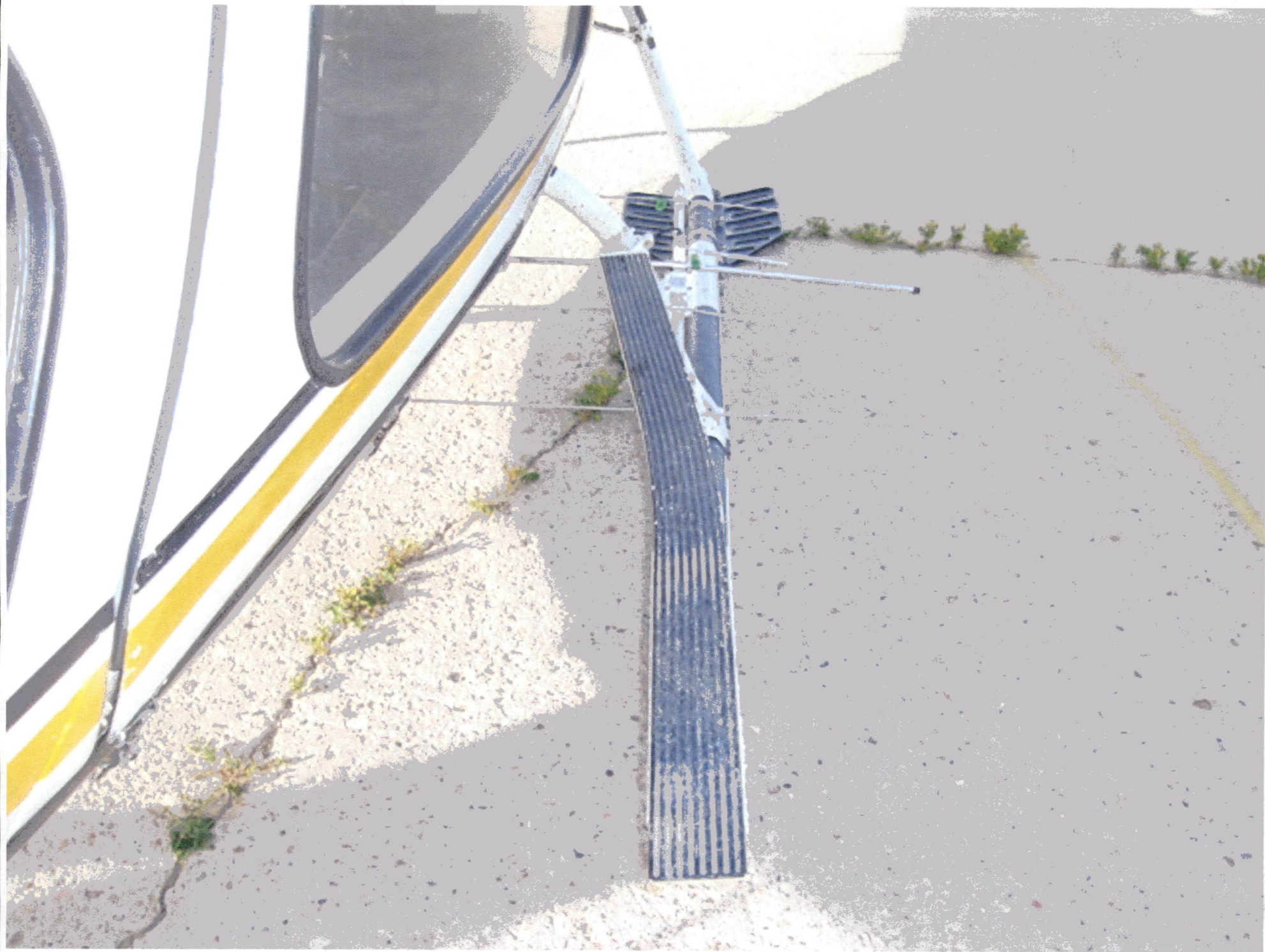
600 lb OK ✓













U.S. Department
of Transportation
**Federal Aviation
Administration**

Engine & Propeller Directorate

New York Aircraft Certification Office
1600 Stewart Avenue
4th Floor, Suite 410
Westbury, NY 11590
(516) 228-7300, Fax: (516) 794-5531

FEB 03 2010

Mr. G. Oucharek
A/Regional Superintendent, Aircraft Certification
Transport Canada, Prairie and Northern Region-Aircraft Certification
800-1600 Airport Road NE
Calgary, Alberta T2Z 6Z8
Canada

Subject: Issuance of Supplemental Type Certificate (STC) SR02770NY

Dear Mr. Oucharek:

This is in reference to your request dated September 24, 2009 (TCCA File Ref. C-09-0879) for the issuance of a Supplemental Type Certificate (STC), under terms of the US/Canada Bilateral Aviation Safety Agreement (BASA) for the Installation of Quick Release Maintenance Step, Maintenance Peg Step and Fixed Cabin Step on Eurocopter AS 350B, B1, B2, B3, BA, D, D1 and AS 355E, F, F1, F2, N, NP model aircraft. The corresponding FAA Project Number is ST6472NY-R (TCCA STC SH09-38, Issue No.1, approved August 7, 2009; issued August 7, 2009).

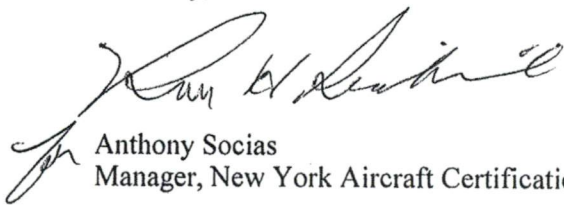
We have reviewed the information submitted by your office. In accordance with the current US/Canada Bilateral Aviation Safety Agreement, we have enclosed STC SR02770NY, issued January 26, 2010.

In accordance with the US/Canada bilateral relationship using TCCA compliance to the maximum extent, this STC includes references to documents that include the words "or later TCCA approved/accepted revisions." It is expected that as State of Design responsible for the STC, TCCA will coordinate any major/significant changes, as deemed appropriate, with the FAA prior to TCCA approval/acceptance.

Please forward the enclosed STC and a copy of "Information Concerning Your Responsibility as a Holder of a Supplemental Type Certificate Issued to a Canadian Applicant" to AERO Design Ltd. A copy of the STC and required documents should accompany each installation. Also, your attention is directed to the limitations and conditions specified in the STC.

If you have any questions relating to the above information, please contact Mr. Stephen Kowalski at (516) 228-7327.

Sincerely,



Anthony Socias
Manager, New York Aircraft Certification Office

Enclosures

NEW ENGLAND REGION
NEW YORK AIRCRAFT CERTIFICATION OFFICE
1600 STEWART AVENUE, SUITE 410
WESTBURY, NEW YORK 11590

**INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A
SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT**

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.

If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.



Anthony Socias
Manager,
New York Aircraft Certification Office

DART

FMS-D205-633

Page 1 of 3

DART AEROSPACE LTD.
1270 Aberdeen Street
Hawkesbury, ON, K6A 1K7
CANADA

Tel: 1 613 632 3336
Fax: 1 613 632 4443

e-mail: heli@dartaero.com
http://www.dartaero.com

FLIGHT MANUAL SUPPLEMENT

FMS-D205-633

*Heli-Access-Step*TM

BELL 205/212/214/412 MODELS

This supplement must be attached to the approved Flight Manual when the listed equipment is installed. The information contained herein supplements the information in the basic Helicopter Flight Manual. For limitations, procedures and performance not contained in this document, consult the Helicopter Flight Manual.

COMPLIANCE WITH SECTION 1, LIMITATIONS, IS MANDATORY.

CANADA	
DEPARTMENT OF TRANSPORT	
AIRCRAFT CERTIFICATION	
BRANCH	
MAR 11 2003	
BY <i>Alexander</i>	APPROVED
CERTIFICATE NO. <i>5496-57</i>	
ISSUE NO. <i>5</i>	

Prepared By: *K. Johnston* (03.02.24)
K. Johnston (Engineering Clerk)

Checked By: *D. Shepherd* (03.02.24)
D. Shepherd (DE #02)

Released By: *J. Bradley* (03.02.24)
J. Bradley (DE #01)

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Revision: B
Date: 03.02.24

LOG OF AMENDMENTS

Rev. No.	Pages Revised	Revised By and Date	Approved By and Date	Inserted By	Date Inserted
A	New	B. Williams 96.11.04	L. B. Samoil 97.02.26		
B	All	D. Shepherd 03.02.24			

TC Approved

MAR 11 2003

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Revision: B
Date: 03.02.24

SECTION 1 - OPERATING LIMITATIONS

LOADS

The Dart D205-633-011/-013/-015 Heli-Access-Step Installations are certified for a maximum personnel load of 500 lb.

SECTION 2 - OPERATING PROCEDURES

NO CHANGE

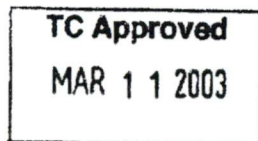
SECTION 3 - PERFORMANCE

NO CHANGE

SECTION 4 - NORMAL PROCEDURES


DAILY INSPECTION (Preflight)

Amend Daily Preflight inspection to check physical integrity and security of the step.






TC Approved: _____
(DATE)

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
FABRICATION DOCUMENTS		
82715	Short Cabin Step Assembly	0
82717	Long Cabin Step Assembly	0
82718	Commuter Cabin Step Assembly	0
82723	Bracket Fabrication	0
82733	Short Cabin Step Parts Fabrication	0
82734	Cabin Step Parts Fabrication	0
82736	Commuter Cabin Step Parts Fabrication	0
82760	Commuter Step Assembly	0
82765	Bracket Fabrication	1
 ENGINEERING DOCUMENTS		
ER827.02	Engineering Report	0
APPROVAL:		
 <div style="display: flex; justify-content: space-between;"> <div>Transport Canada</div> <div>Transports Canada</div> </div> <div style="text-align: center;"> AIRCRAFT CERTIFICATION DIVISION APPROVED By <i>D.S. Austen</i> Appr'l No. <u>SH09-38</u> Appr'l Date <u>2009-08-07</u> Issue No. <u>2</u> Issue Date <u>2010-10-21</u> <small>YY-MM-DD</small> </div>	ORIGINAL DATE: 20 October, 2008 REVISION DATE: 29 June 2010	<div style="text-align: center;"> AERO DESIGN LTD. 2013 - 39th Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 www.aerodesign.ca </div>
	SHEET 1 OF 1	Eurocopter AS350 & 355 Series Fixed Cabin Step Fabrication
	DCL827-13	Rev. <div style="font-size: 3em; font-weight: bold;">3</div>

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION							
INSTALLATION DOCUMENTS									
82705	Long Cabin Step Installation	1							
82706	Short Cabin Step Installation	1							
82709	Full Length Cabin Step Installation	0							
82750	Short Commuter Cabin Step Installation	0							
82751	Long Commuter Cabin Step Installation	0							
82752	Full Length Commuter Cabin Step Installation	0							
ICA827.92	Instructions for Continued Airworthiness	2							
FABRICATION DOCUMENTS									
DCL827-13	Document Control List for Step Assembly	3							
<table border="1"> <tr> <td rowspan="4"> APPROVAL:  Transport Canada Transport Canada AIRCRAFT CERTIFICATION DIVISION APPROVED By <i>D.S. [Signature]</i> Appr'l No. <u>2409-38</u> Appr'l Date <u>2009-08-07</u> Issue No. <u>2</u> Issue Date <u>2010-10-21</u> YY-MM-DD </td> <td> ORIGINAL DATE: 20 October, 2008 REVISION DATE: 29 June 2010 </td> <td> AERO DESIGN LTD. 2013 – 39th Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 www.aerodesign.ca </td> </tr> <tr> <td> SHEET 1 OF 1 </td> <td> Eurocopter AS350 & AS355 Series Fixed Cabin Step Installation </td> </tr> <tr> <td> DCL827-3 </td> <td> Rev. 4 </td> </tr> </table>			APPROVAL:  Transport Canada Transport Canada AIRCRAFT CERTIFICATION DIVISION APPROVED By <i>D.S. [Signature]</i> Appr'l No. <u>2409-38</u> Appr'l Date <u>2009-08-07</u> Issue No. <u>2</u> Issue Date <u>2010-10-21</u> YY-MM-DD	ORIGINAL DATE: 20 October, 2008 REVISION DATE: 29 June 2010	AERO DESIGN LTD. 2013 – 39 th Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 www.aerodesign.ca	SHEET 1 OF 1	Eurocopter AS350 & AS355 Series Fixed Cabin Step Installation	DCL827-3	Rev. 4
APPROVAL:  Transport Canada Transport Canada AIRCRAFT CERTIFICATION DIVISION APPROVED By <i>D.S. [Signature]</i> Appr'l No. <u>2409-38</u> Appr'l Date <u>2009-08-07</u> Issue No. <u>2</u> Issue Date <u>2010-10-21</u> YY-MM-DD	ORIGINAL DATE: 20 October, 2008 REVISION DATE: 29 June 2010	AERO DESIGN LTD. 2013 – 39 th Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 www.aerodesign.ca							
	SHEET 1 OF 1	Eurocopter AS350 & AS355 Series Fixed Cabin Step Installation							
	DCL827-3	Rev. 4							



Transport
Canada

Transports
Canada

#1100, 9700 Jasper Avenue
Edmonton, Alberta
T5J 4E6

NOTESLIP

Date 25-Mar-10

No. of pages (including cover sheet) _____

Our File: C-10-0064
SH09-38 – Issue 1

Your File: 827

To: AERO DESIGN LTD.

ATTN: TED BURGOIN

Phone (403) 250-8027

Fax Phone (403) 250-8333

From Debbie Dubyk

Phone 780-495-7412

Fax Phone 780-495-7963

SUBJECT: DOCUMENTS – SH09-38 – ISSUE 1
STEP INSTALLATIONS
REVISION OF A TECHNICAL DOCUMENT WITHOUT RE-ISSUING THE
APPROVAL.

Hi Ted:

Please find enclosed the following documents pertaining to the above noted Approval:

- FMS827.90 – Rev. 1 – TC Approved 2010 February 5;
- MSI 53 – Rev. 1 - Block 5 signed and dated by Jack Staal 5 Feb 2010;
- MSI 53 – Rev. 2 – Block 5 signed and dated by Jack Staal 5 Feb 2010;
- ICA 827.91 – Rev. 2;
- ICA 827.92 – Rev. 1;

Thank you.

Debbie Dubyk

Debbie Dubyk

Operational Support Assistant

Canada

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

<p>Name of the applicant for the design change approval:</p> <p>Description of the design change:</p> <p>Certification Basis of design change and revision date:</p> <p>CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:</p> <p>CAR Standard 513.05 (1) (g) (iv): Installation Instructions:</p>	<p>Aero Design Ltd.</p> <p>Installation of Maintenance Peg Step on Eurocopter AS350 & AS355 Series</p> <p>FAR 27, Amendment 27-20</p> <p align="right">REV 1</p> <p>Section 0-3 of Supplemental ICA (ICA 827.93)</p> <p>Installation Drawing 82703, 82707</p>
---	---

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.93)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4	Supplemental ICA ref: Section 4
---	---	---------------------------------

BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.	
Applicants Signature:	Date: <u>Januarv 15. 2010</u>
Applicants Name: <u>E. Burgoin, P.Eng, DAR 290M</u>	

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.			
Reviewer's Name: <u>J. STAAL</u>	Phone # <u>780-495-5227</u>	Email: <u>RAED</u>	Mail Routing Symbol: <u>jack.staal@tc.gc.ca</u>
Signature:	Date: <u>5 January 2010</u> <u>5 Feb 2010 JB. (JAN is misdated)</u>	NAPA Number <u>C-10-0064</u>	

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	<div style="text-align: center;">REV 2</div> Section 0-3 of Supplemental ICA (ICA 827.91)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82701, 82702, 82708

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.91)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

BLOCK 3

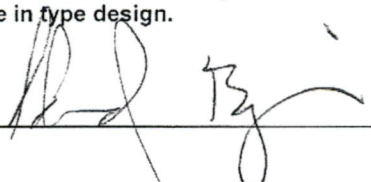
Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

<p>A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."</p>	<p>ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4</p>	<p>Supplemental ICA ref: Chapter 4</p>
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BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

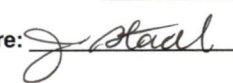
Applicants Signature:  Date: January 15, 2010

Applicants Name: E. Burgoin, P.Eng, DAR 290M

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: J. STAAL Phone # 780-495-5227 Email: RAED Mail Routing Symbol: lock.staal@tc.gc.ca

Signature:  Date: 5 January 2010 NAPA Number 5 Feb 2010 (JAW IS MISDATED) JB C-10-0064

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.93

EUROCOPTER AS350 & AS355 SERIES MAINTENANCE PEG STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Maintenance Peg Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-2, Revision 2, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 1
Date: 17 December 2009

AERO Design Ltd.
Engineering Consultants

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7
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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0	4 August 2009		Original Issue
1	17 December 2009		

LIST OF EFFECTIVE PAGES

List of Revisions

Revision 0 (Original Issue)
Revision 14 August 2009
17 December 2009

List of Effective Pages

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05-00-00	8-9	1
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CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Maintenance Peg Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness
LH - Left Hand
RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Maintenance Peg Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

The Maintenance Peg Step (82703-01/-02) requires installation of the High Mounted Attachment Provisions in accordance with STC SH08-16.

The Maintenance Peg Step (82707-01/-02) is not compatible with High Mounted Attachment Provisions in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION (82703 CONFIGURATION)

The Maintenance Peg Step (82703-01/-02) installation consists of a tube that sticks out inboard and aft from the High Mounted External Attachment Provision. The Maintenance Peg Step is required because installation of the High Mounted External Attachment Provision requires the existing step provided by Eurocopter to be removed, if installed.

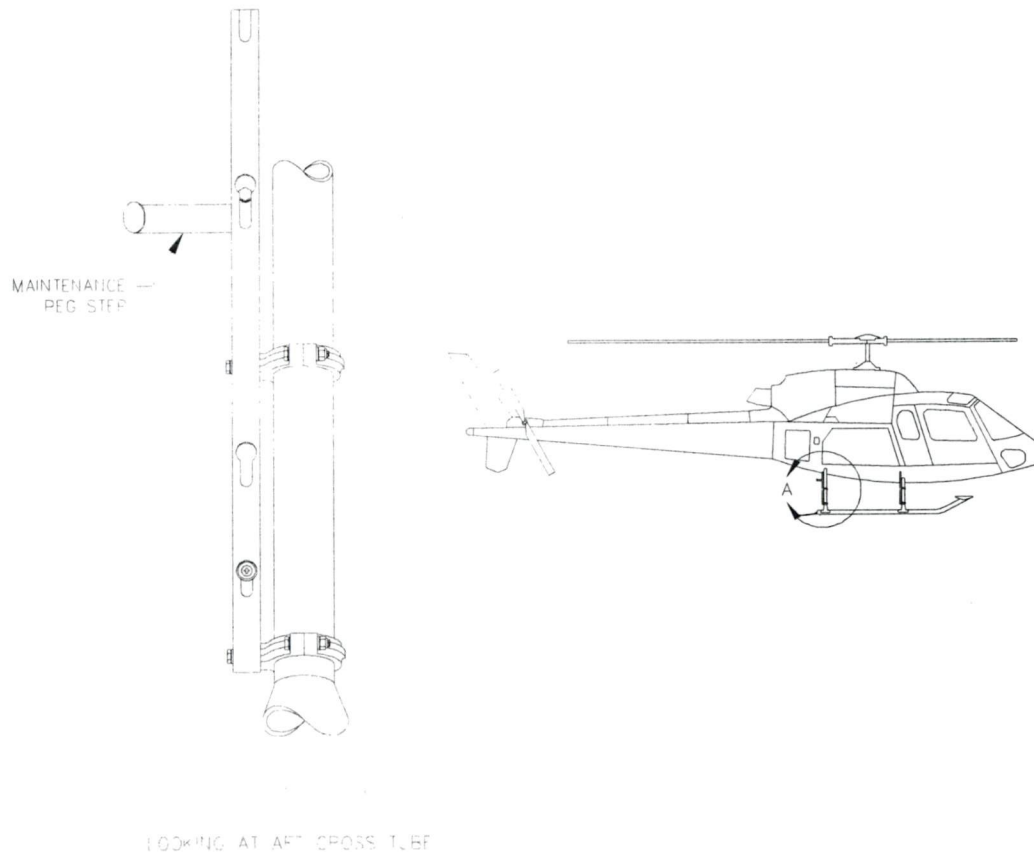


Figure 0-1 – Maintenance Peg Step Installation

0-6 GENERAL DESCRIPTION (82707 CONFIGURATION)

The Stand Alone Maintenance Peg Step installation (82707-01/-02) consists of a fitting attached to the aft cross tube with a tube that sticks out inboard and aft from the cross tube. The Maintenance Peg Step is required to aid access to the helicopter for maintenance activities.

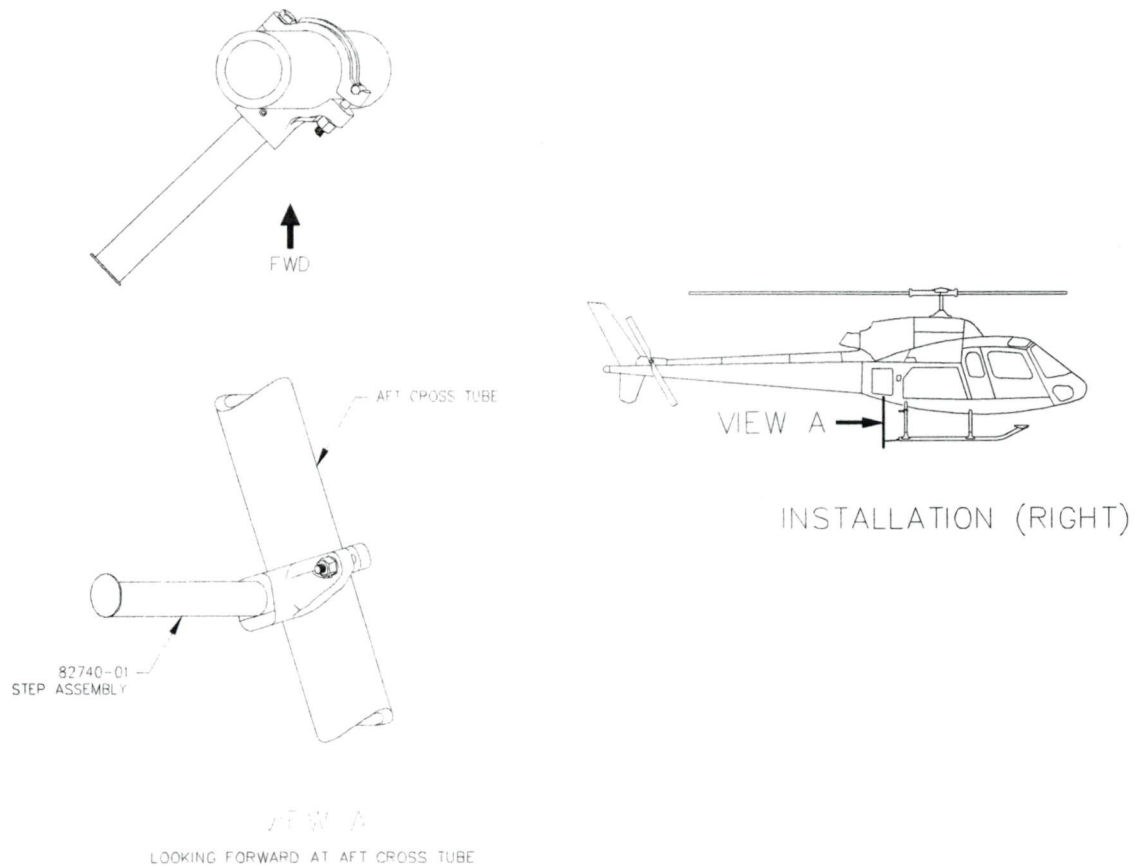


Figure 0-2 – Maintenance Peg Step Installation

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Maintenance Peg Step.

CHAPTER 5 – INSPECTION REQUIREMENTS**5-1 INSPECTION SCHEDULE**

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Maintenance Peg Step.

Daily Inspection

1. Inspection Area: Step
 - a) Inspect the Step for condition and security.

100 Hour or Annual Inspection

1. Inspection Area: Step
 - a) Visually inspect all mounting hardware for condition and security.
 - b) Visually inspect step for cracks, corrosion or other damage.
 - c) 82707 Configuration Only: Visually inspect step tube attachment to socket fitting. Step tube must not be loose in socket.

Special Inspections

1. Following a hard landing inspect the Maintenance Peg Step installation in accordance with the 100 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Maintenance Peg Step (82703 Configuration)

Part	Type of Damage	Max. Allowable	Repair
Step	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks	None	N/A
	Bent Lugs	None	N/A

2. Maintenance Peg Step (82707 Configuration)

Part	Type of Damage	Max. Allowable	Repair
Step Tube	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks	None	N/A
	Permanent bend	*Note	None
Fitting	Corrosion	0.030" deep	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks	0.060" deep x 0.5" long	Blend up to 0.060" deep with scotchbrite.
	Cracks	None	N/A
	Elongation of socket hole	None	N/A

*Note: Minor bending of the step tube that does not cause the tube to become loose in the socket is acceptable.

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly (82703 and 82707 configurations)

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Maintenance Peg Step Installation may be applied to the right and/or left side of the helicopter. The 82707 configuration cannot be installed on the same side as the 82703 configuration

25-1 STEP INSTALLATION (82703 CONFIGURATION)

Refer to Figure 2. Beam does not have to be installed on helicopter prior to this installation.

1. Locate Step Assembly 78635-01 / -02 (right/left) on aft Beam 78631-01 by inserting bushings on Step Assembly into holes provided on inboard face of aft Beam. Fasten with two AN4-5A Bolts, AN960-416 Washers, and MS21044N4 Nuts. Torque bolts to 30-40 in-lbs.

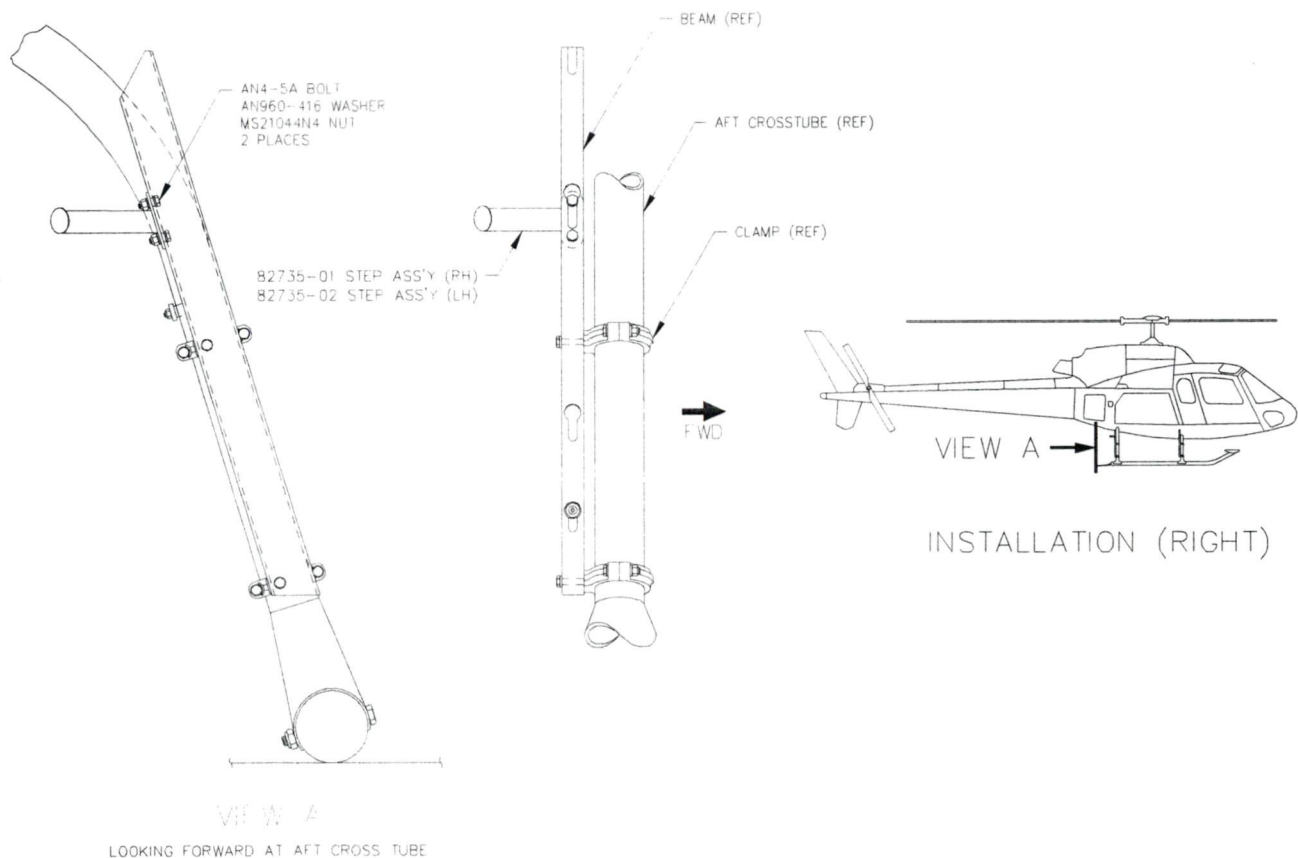


Figure 2 – Maintenance Peg Step Attachment Details

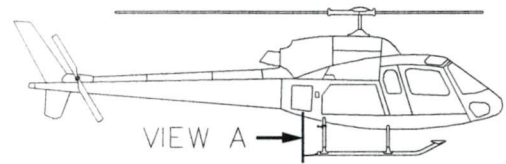
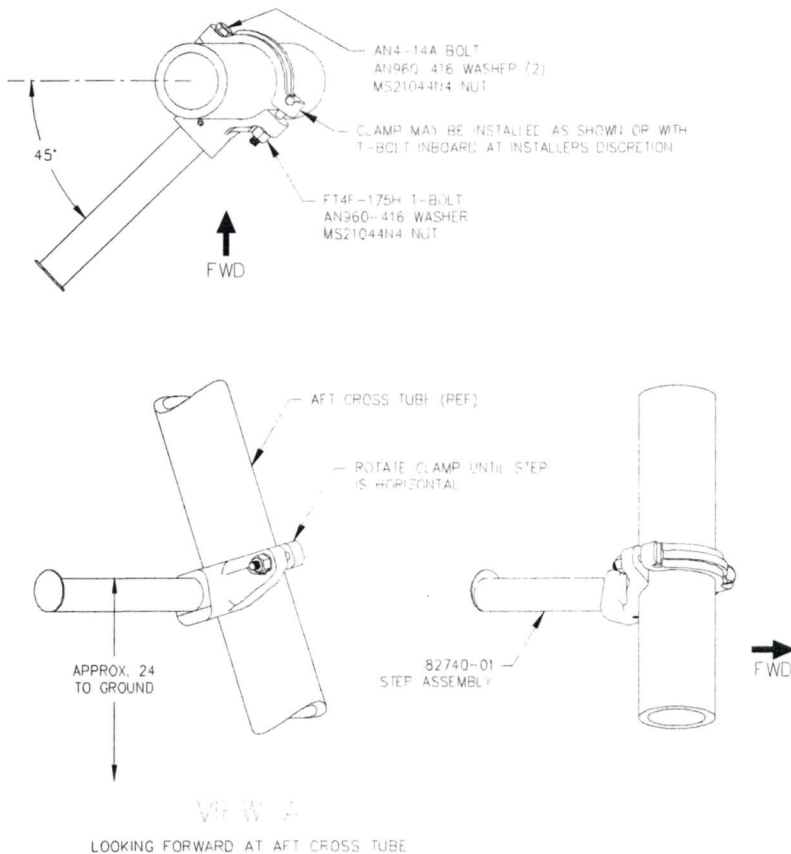
25-2 STEP REMOVAL (82703 CONFIGURATION)

Refer to Figure 2.

1. Remove two AN4-5A Bolts, AN960-416 Washers, and MS21044N4 Nuts attaching Step Assembly to aft Beam. Remove Step Assembly.

25-3 STEP INSTALLATION (82707 CONFIGURATION)

1. Locate Step Assembly 78640-01 on aft cross tube. Fasten with one side with AN4-14A Bolt, AN960-416 Washers, and MS21044N4 Nut; fasten opposite side with FT4F-175H T-Bolt, AN960-416 Washer and MS21044N4 Nut. Rotate step until horizontal, approximately 45 degrees to the cross tube. Torque nuts to 50-70 in-lbs.



INSTALLATION (RIGHT)

Figure 2 – Maintenance Peg Step Attachment Details

25-4 STEP REMOVAL (82707 CONFIGURATION)

Refer to Figure 2.

1. Remove AN4-14A Bolt, FT4F-175H T-Bolt, AN960-416 Washers, and MS21044N4 Nuts attaching Step Assembly to aft cross tube. Remove Step Assembly.

25-5 WEIGHT AND BALANCE

82703 Configuration

Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82703-01	Maintenance Peg Step Inst'n (Right)	0.4	165.3	66.1	33.9	13.6
82703-02	Maintenance Peg Step Inst'n (Left)	0.4	165.3	66.1	-33.9	-13.6

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	Moment mm-kg
82703-01	Maintenance Peg Step Inst'n (Right)	0.2	4199	763	861	157
82703-02	Maintenance Peg Step Inst'n (Left)	0.2	4199	763	-861	-157

82707 Configuration

Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82707-01	Maintenance Peg Step Inst'n (Right)	1.0	163.8	163.8	32.5	32.5
82707-02	Maintenance Peg Step Inst'n (Left)	1.0	163.8	163.8	-32.5	-32.5

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	Moment mm-kg
82707-01	Maintenance Peg Step Inst'n (Right)	0.45	4160.5	1872.2	825.5	371.5
82707-02	Maintenance Peg Step Inst'n (Left)	0.45	4160.5	1872.2	-825.5	-371.5

25-6 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.91

EUROCOPTER AS350 & AS355 SERIES QUICK RELEASE MAINTENANCE STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Maintenance Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-11, Revision 1, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 2
Date: 05 January, 2010

AERO Design Ltd.
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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0			Original Issue
1	23 July 2009		
2	05 January 2010		

LIST OF EFFECTIVE PAGES

List of Revisions	Revision 0 (Original Issue)	20 October, 2008
	Revision 1	23 July, 2009
	Revision 2	05 January 2010

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
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25-3 WEIGHT AND BALANCE	11
25-4 STRUCTURAL FASTENER DATA	12

CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Maintenance Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness

LH - Left Hand

RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Maintenance Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

High Mounted Quick Release Provisions:

The Quick Release Maintenance Step must be installed in the lower (stowed) position prior to installation of the AERO Design Ltd. Cargo Baskets in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION

The Quick Release Maintenance Step installation consists of a step assembly which is attached to quick release mounting provisions installed on the helicopter. These mounting provisions are capable of mounting various equipment including cargo baskets.

The step itself consists of an aluminum extrusion attached to brackets on the ends with fittings that lock into the quick release mechanism.

Two positions are provided: upper for use in maintenance activities and lower for stowing under a cargo basket.

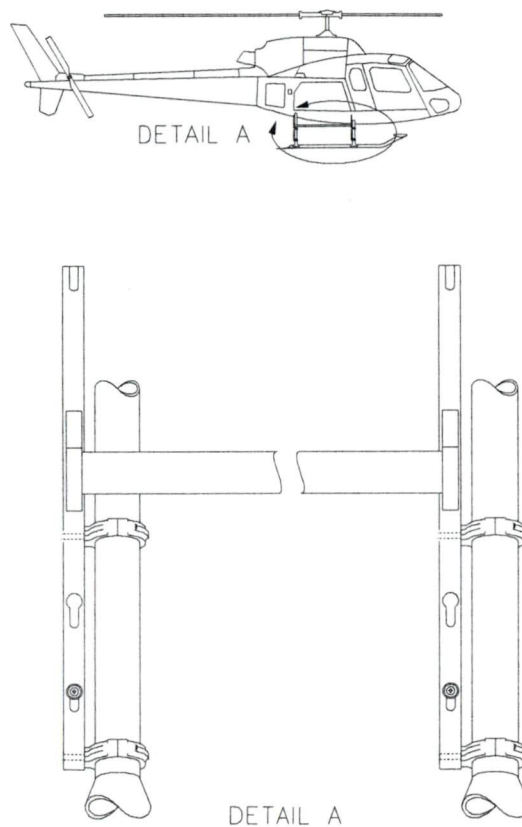


Figure 0-1 – AS350 Quick Release Maintenance Step Installation
(High Installation shown, Low Installation similar)

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Maintenance Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

Refer to ICA764.90 for inspection requirements for the Quick Release Mounting Provisions not included below.

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Maintenance Step.

Daily Inspection

1. Inspection Area: Step
 - a) Inspect the step attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.

100 Hour or Annual Inspection

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for inspection of mounting provisions.

1. Inspection Area: Step
 - a) Visually inspect welds attaching end brackets to step extrusion for cracks, corrosion or other damage.
 - b) Visually inspect step for damage.
 - c) Visually inspect lugs attaching the step to the beams for security and damage.

Special Inspections

1. Following a hard landing inspect the Quick Release Maintenance Step installation in accordance with the 100 hour or annual inspection listed above.
2. Any joints using a helical thread insert (Helicoil) shall be inspected on assembly in accordance with the procedure for checking self locking nuts and screws specified in the Eurocopter Standard Practices Manual, Section 20.02.05.601

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for further limits and repair instructions.

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Step Assembly

Part	Type of Damage	Max. Allowable	Repair
Step End Bracket	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Bent Lugs	None	N/A
Centre Step Section	Corrosion	2" x 2" x 0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 1" long	Blend up to 0.010" deep with scotchbrite.
	Cracks / Dents	None	N/A
	Permanent Deflection of Step	0.25" max at middle of step	None

2. Steel Beams

Part	Type of Damage	Max. Allowable	Repair
Steel Beam	Corrosion	0.030" deep	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (Outboard face)	0.030" deep x 0.125" wide	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (all other sides)	0.060" deep x 0.125" wide	Blend up to 0.060" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Elongation of Keyway	See figure 5-1 thru 5-3	None
	Widening of slots	27/64" (0.422) diameter maximum (check with a 27/64" drill)	None



Figure 5-1 – Critical Keyway dimensions (Low Beams)

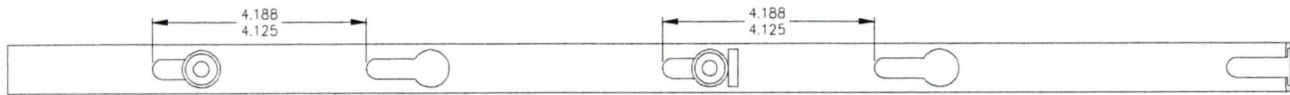


Figure 5-2 – Critical Keyway dimensions (High Beams)

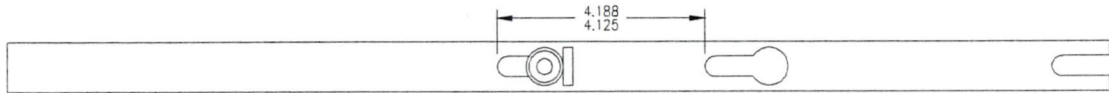


Figure 5-3 – Critical Keyway dimensions (Mid Beams)

3. Step Welds

Cracks up to 0.25" long may be repaired as follows:

- Clean area of paint.
- Grind away weld in area of crack.
- T.I.G. weld per MIL-STD-2219 Class "C" using ER4043 filler rod. Do not grind flush.
- Touch up paint as noted in section 5-3.

4. Helical Thread Inserts

Helical thread inserts (Helicoils) found to be damaged shall be repaired in accordance with the Eurocopter Standard Practices Manual, Section 20.03.04.404.

Part numbers:

1/4-28 insert: 3591-4CN375

3/8-24 insert: 3591-6CN563

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Quick Release Maintenance Step Installation may be applied to the right and/or left side of the helicopter. Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for installation, inspection, repair and removal instructions for the mounting provisions.

25-1 STEP INSTALLATION

Refer to Figure 4.

1. Set upper attachment into upper keyway in forward and aft beams.
2. Lift step until lower attachment fitting hits stop. Push fitting into keyway and slide step down until locked.

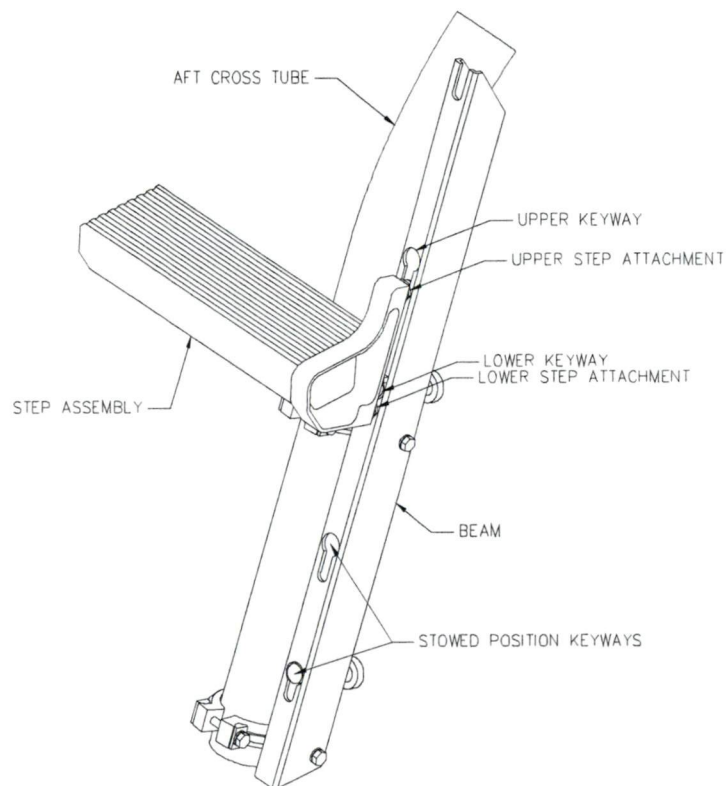


Figure 25-1 – Step Attachment
(High Installation shown, Low and Mid Installation similar)

25-2 STEP REMOVAL

Refer to Figure 4.

1. Pull knob at bottom end of forward beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
2. Pull knob at bottom end of aft beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.

3. Lift step until upper attachments are out of keyways on both beams and remove from helicopter.

25-3 WEIGHT AND BALANCE

Difference weight and balance configurations are required for the pilot. The first is the installation of Provisions only. The second is Provisions and Step in the upper position. The third is Provisions and step in the lower position (High Configuration only).

Standard						
P/N	Description	Weight	Longitudinal		Lateral	
			arm	moment	arm	moment
	<i>Upper Position (High config.)</i>	lb	in	in-lb	in	in-lb
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	38.9	249.0
82701-01	Step Installation	16.4	135.6	2223.4	37.6	617.3
<i>Lower Position (Stowed, High config.)</i>						
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	41.7	266.9
82701-01	Step Installation	16.4	135.6	2223.4	38.7	635.2
<i>Low Configuration</i>						
78601-01	Low Provisions Installation	7.0	135.4	947.9	37.6	263.5
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	39.1	250.2
82702-01	Step Installation	13.4	135.6	1816.4	38.3	513.7
<i>Mid Configuration</i>						
78601-03	Mid Provisions Installation	8.0	135.4	1083.9	37.3	298.2
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	39.6	253.4
82708-01	Step Installation	14.4	135.6	1952.4	38.3	551.6

P/N	Description	Metric				
		Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
	<i>Upper Position (High config.)</i>					
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	988.0	2865.2
82701-01	Step Installation	7.4	3441.3	25465.7	956.1	7075.0
	<i>Lower Position (Stowed, High config.)</i>					
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	1059.0	3071.1
82701-01	Step Installation	7.4	3441.3	25465.7	983.9	7280.9
	<i>Low Configuration</i>					
78601-01	Low Provisions Installation	3.2	3439.6	11006.7	955.0	3056.1
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	993.1	2880.1
82702-01	Step Installation	6.1	3440.4	20986.5	973.1	5936.2
	<i>Mid Configuration</i>					
78601-03	Mid Provisions Installation	3.6	3441.4	12457.7	946.9	3427.7
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	1005.8	2916.9
82708-01	Step Installation	6.5	3444.1	22437.5	976.1	6344.6

Note: Lateral arms are given for right side installation. For installation on left side, lateral arms are negative.

25-4 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

Jeff Clarke

From: Jeff Clarke [jeff@aerodesign.ca]
Sent: January 21, 2010 1:33 PM
To: 'Staal, Jack'
Subject: SH08-16 - AS350 Cargo Baskets

C-10-0064

Jack,

We have added a new height mounting beam to our AS350 Cargo Basket. It is mid-way between the high and low configurations that are already approved, allowing the basket to be installed as high as possible while still allowing the lid to open when "squirrel cheek" cargo extenders are installed. This does not constitute a new overall configuration for the STC, and since each configuration says "or later approved revision" of the document control list, attached are revised approved DCLs and the revised documents. The existing engineering reports and flight tests apply to this configuration since it is between the two existing positions.

Changes are as follows:

- New beam fabrication (drawing 78632, rev. 0)
- Attachment Provisions installation drawing revised to include new beams (78601, Rev. 2)
- Cargo Basket installation drawing revised to include new position (76401, Rev. 2; 77601, Rev. 2; 78401, Rev. 2)
- Instructions for Continued Airworthiness revised to add weight and balance data for new position (ICA764.90, Rev. 2)
- Flight Manual Supplement revised to add weight and balance data for new position (FMS764.91, Rev. 1)

Since the Flight Manual Supplement is revised in the un-approved sections only, I have left the existing stamp on the cover.

Please let me know if you have any questions.


Regards,

Jeff Clarke, CET

AERO Design Ltd.
2013 39th Avenue NE
Calgary, Alberta, Canada
T2E 6R7

Phone: 403.250.8027
Fax: 403.250.8333

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
INSTALLATION DOCUMENTS		
82701	Quick Release Maintenance Step Installation (High)	0
82702	Quick Release Maintenance Step Installation (Low)	0
ICA827.91	Instructions for Continued Airworthiness	1
FMS827.90	Flight Manual Supplement	0
FABRICATION DOCUMENTS		
DCL827-11	Document Control List for Step Assembly	1
ENGINEERING DOCUMENTS		
<div> <div> <p>APPROVAL:</p>  <p>Transport Canada</p> <p>E. BURGOIN DAR 290M</p> <p>APPROVED</p> <p>By <i>[Signature]</i></p> <p>Appr'l No. <i>SH09-380</i></p> <p>Appr'l Date <i>7 AUG 2009</i></p> <p>Issue No. <i>1</i></p> <p>Issue Date <i>7 AUG 2009</i></p> </div> <div> <p>ORIGINAL DATE:</p> <p>31 October, 2008</p> <p>REVISION DATE:</p> <p>7 August, 2009</p> </div> <div> <p>AERO DESIGN LTD.</p> <p>2013 – 39th Ave NE, Calgary, Alberta, T2E 6R7</p> <p>Ph. (403) 250-8027</p> <p>Fax. (403) 250-8333</p> <p>www.aerodesign.ca</p> </div> </div>		
SHEET 1 OF 1		Eurocopter AS350 & AS355 Series Quick Release Maintenance Step Installation
DCL827-1		Rev. 2

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
INSTALLATION DOCUMENTS		
82703	Maintenance Peg Step Installation	0
ICA827.93	Instructions for Continued Airworthiness	0
FABRICATION DOCUMENTS		
82735	Step Assembly	0
ENGINEERING DOCUMENTS		
ER827.01	Engineering Report	1
<div> <div> APPROVAL:  Transport Canada E. BURGOIN DAR 290M APPROVED By:  Appl. No. <u>SH09-388</u> Appl. Date <u>7 AUG 2009</u> Issue No. <u>1</u> Issue Date <u>7 AUG 2009</u> </div> <div> ORIGINAL DATE: 7 November, 2008 REVISION DATE: 7 August, 2009 </div> <div> AERO DESIGN LTD. 2013 – 39th Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 www.aerodesign.ca </div> </div>		
SHEET 1 OF 1		Eurocopter AS350 & AS355 Series Maintenance Peg Step Installation
DCL827-2		Rev. 1

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.93

EUROCOPTER AS350 & AS355 SERIES MAINTENANCE PEG STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Maintenance Peg Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-2, Revision 1, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0
Date: 4 August 2009

AERO Design Ltd.
Engineering Consultants

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7
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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0	4 August 2009		Original Issue

LIST OF EFFECTIVE PAGES

List of Revisions

Revision 0 (Original Issue) 4 August 2009

List of Effective Pages

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25-2 STEP REMOVAL	8
25-3 WEIGHT AND BALANCE	9
25-4 STRUCTURAL FASTENER DATA	9

CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Maintenance Peg Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness
LH - Left Hand
RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Maintenance Peg Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

The Maintenance Peg Step requires installation of the High Mounted Attachment Provisions in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION

The Maintenance Peg Step installation consists of a tube that sticks out inboard and aft from the High Mounted External Attachment Provision. The Maintenance Peg Step is required because installation of the High Mounted External Attachment Provision requires the existing step provided by Eurocopter to be removed, if installed.

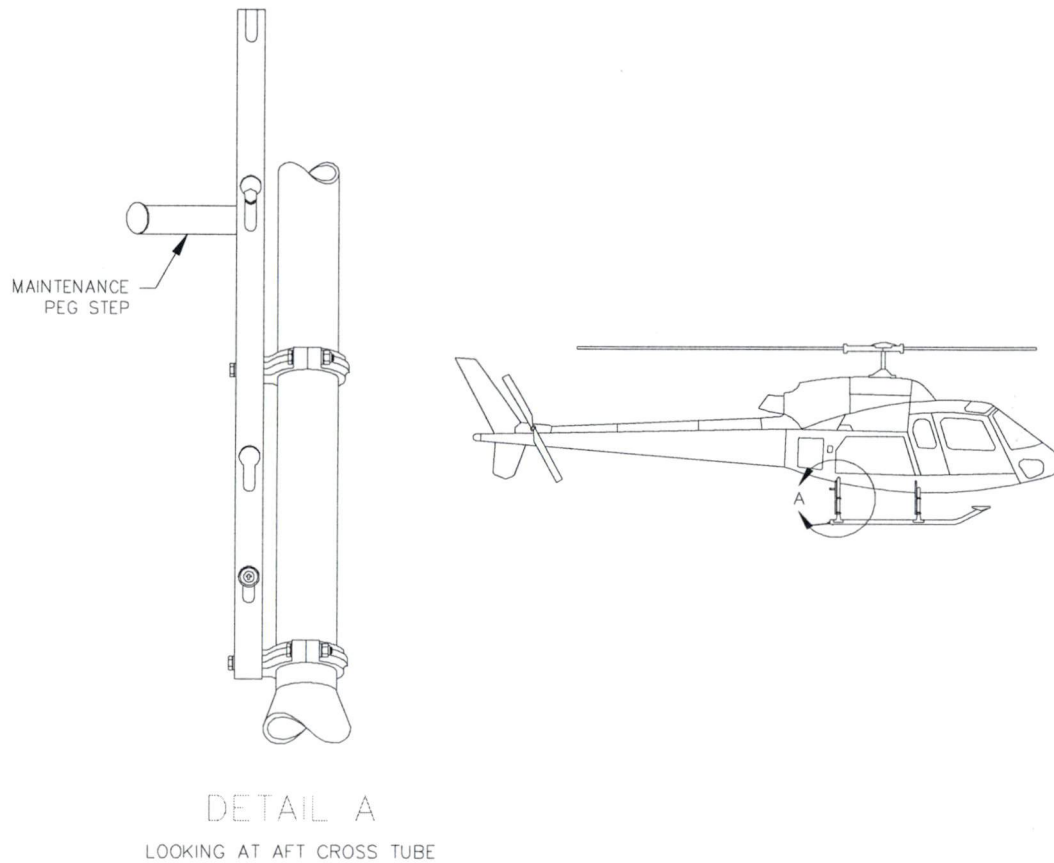


Figure 1 – Maintenance Peg Step Installation

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Maintenance Peg Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Maintenance Peg Step.

Daily Inspection

1. Inspection Area: Step
 - a) Inspect the Step for condition and security.

100 Hour or Annual Inspection

1. Inspection Area: Step
 - a) Visually inspect all mounting hardware for condition and security.
 - b) Visually inspect step for cracks, corrosion or other damage.

Special Inspections

1. Following a hard landing inspect the Maintenance Peg Step installation in accordance with the 100 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Step Assembly

Part	Type of Damage	Max. Allowable	Repair
Step	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks	None	N/A
	Bent Lugs	None	N/A

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Maintenance Peg Step Installation may be applied to the right and/or left side of the helicopter.

25-1 STEP INSTALLATION

Refer to Figure 2. Beam does not have to be installed on helicopter prior to this installation.

1. Locate Step Assembly 78635-01 / -02 (right/left) on aft Beam 78631-01 by inserting bushings on Step Assembly into holes provided on inboard face of aft Beam. Fasten with two AN4-5A Bolts, AN960-416 Washers, and MS21044N4 Nuts. Torque bolts to 30-40 in-lbs.

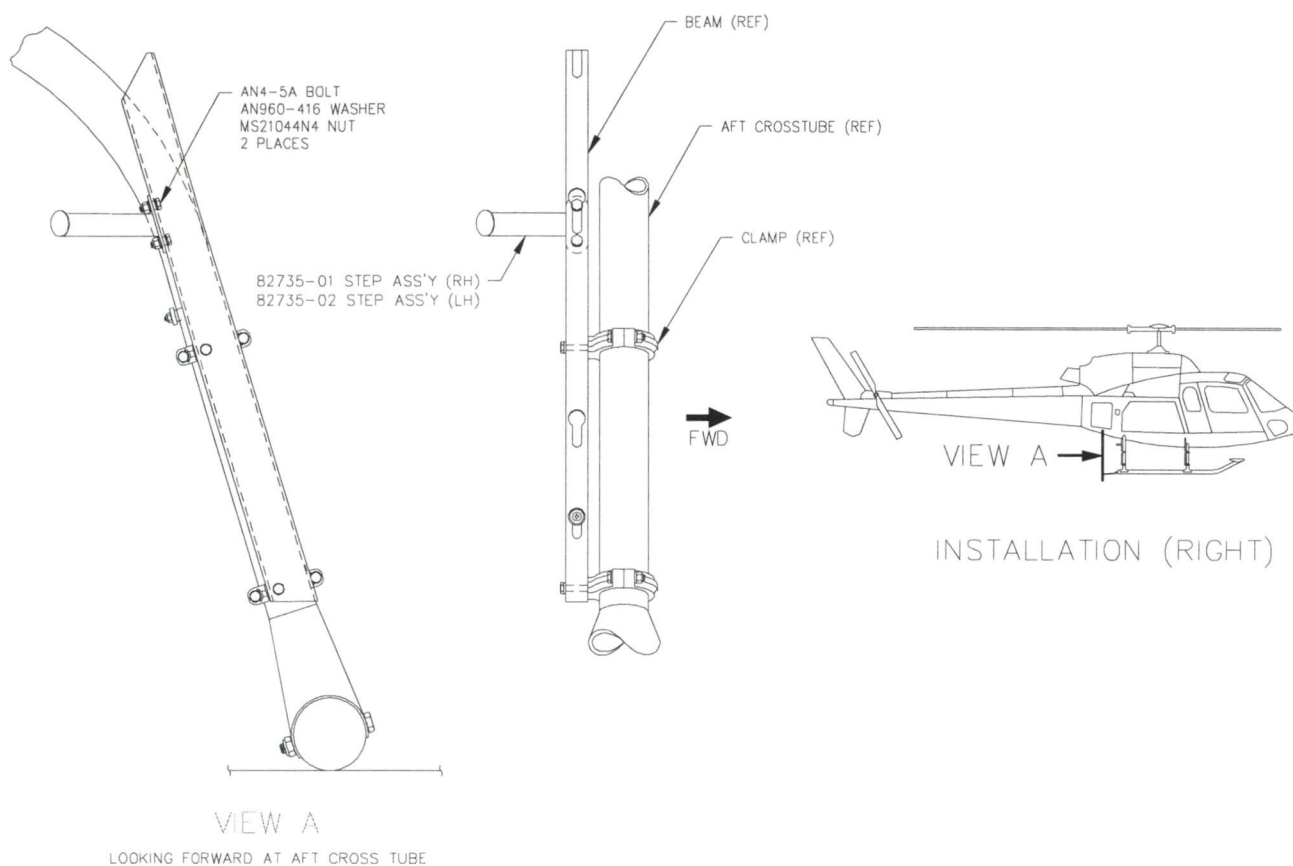


Figure 2 – Maintenance Peg Step Attachment Details

25-2 STEP REMOVAL

Refer to Figure 2.

1. Remove two AN4-5A Bolts, AN960-416 Washers, and MS21044N4 Nuts attaching Step Assembly to aft Beam. Remove Step Assembly.

25-3 WEIGHT AND BALANCE**Standard**

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82735-01	Maintenance Peg Step (Right)	0.4	165.3	66.1	33.9	13.6
82735-02	Maintenance Peg Step (Left)	0.4	165.3	66.1	-33.9	-13.6

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	Moment mm-kg
82735-01	Maintenance Peg Step (Right)	0.2	4199	763	861	157
82735-02	Maintenance Peg Step (Left)	0.2	4199	763	-861	-157

25-4 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.91

EUROCOPTER AS350 & AS355 SERIES QUICK RELEASE MAINTENANCE STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Maintenance Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-11, Revision 1, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 1
Date: 23 July, 2009

AERO Design Ltd.
Engineering Consultants

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7
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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0			Original Issue
1			

LIST OF EFFECTIVE PAGES

List of Revisions

Revision 0 (Original Issue)
Revision 120 October, 2008
23 July, 2009

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	1
Revision Record/List of Effective Pages	2	1
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05-00-00	7-9	0
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CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Maintenance Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness

LH - Left Hand

RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Maintenance Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

High Mounted Quick Release Provisions:

The Quick Release Maintenance Step must be installed in the lower (stowed) position prior to installation of the AERO Design Ltd. Cargo Baskets in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION

The Quick Release Maintenance Step installation consists of a step assembly which is attached to quick release mounting provisions installed on the helicopter. These mounting provisions are capable of mounting various equipment including cargo baskets.

The step itself consists of an aluminum extrusion attached to brackets on the ends with fittings that lock into the quick release mechanism.

Two positions are provided: upper for use in maintenance activities and lower for stowing under a cargo basket.

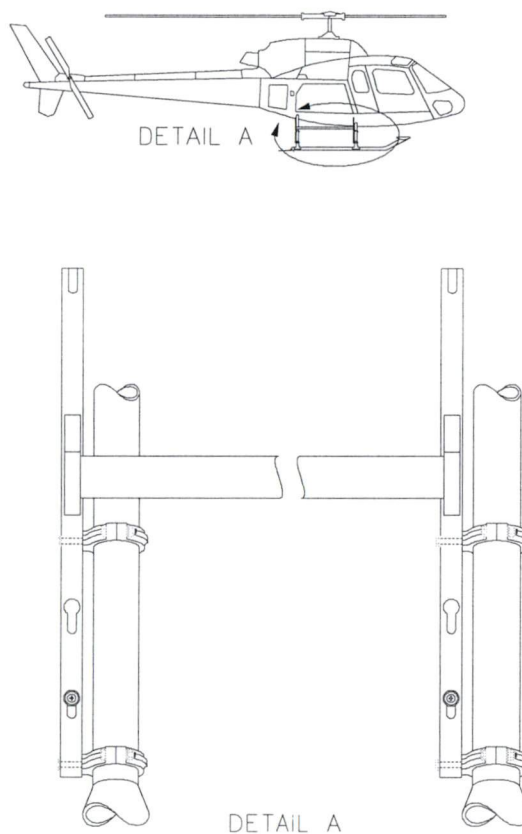


Figure 1 – AS350 Quick Release Maintenance Step Installation
(High Installation shown, Low Installation similar)

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Maintenance Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

Refer to ICA764.90 for inspection requirements for the Quick Release Mounting Provisions not included below.

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Maintenance Step.

Daily Inspection

1. Inspection Area: Step
 - a) Inspect the step attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.

100 Hour or Annual Inspection

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for inspection of mounting provisions.

1. Inspection Area: Step
 - a) Visually inspect welds attaching end brackets to step extrusion for cracks, corrosion or other damage.
 - b) Visually inspect step for damage.
 - c) Visually inspect lugs attaching the step to the beams for security and damage.

Special Inspections

1. Following a hard landing inspect the Quick Release Maintenance Step installation in accordance with the 100 hour or annual inspection listed above.
2. Any joints using a helical thread insert (Helicoil) shall be inspected on assembly in accordance with the procedure for checking self locking nuts and screws specified in the Eurocopter Standard Practices Manual, Section 20.02.05.601

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for further limits and repair instructions.

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Step Assembly

Part	Type of Damage	Max. Allowable	Repair
Step End Bracket	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Bent Lugs	None	N/A
Centre Step Section	Corrosion	2" x 2" x 0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 1" long	Blend up to 0.010" deep with scotchbrite.
	Cracks / Dents	None	N/A
	Permanent Deflection of Step	0.25" max at middle of step	None

2. Steel Beams

Part	Type of Damage	Max. Allowable	Repair
Steel Beam	Corrosion	0.030" deep	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (Outboard face)	0.030" deep x 0.125" wide	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (all other sides)	0.060" deep x 0.125" wide	Blend up to 0.060" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Elongation of Keyway	See figure 3	None
	Widening of slots	27/64" (0.422) diameter (check with a 27/64" drill)	None



Figure 2 – Critical Keyway dimensions (Low Beams)

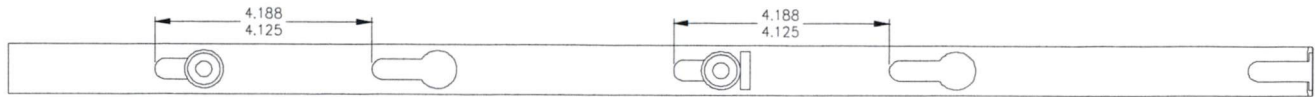


Figure 3 – Critical Keyway dimensions (High Beams)

3. Step Welds

Cracks up to 0.25" long may be repaired as follows:

- a) Clean area of paint.
- b) Grind away weld in area of crack.
- c) T.I.G. weld per MIL-STD-2219 Class "C" using ER4043 filler rod. Do not grind flush.
- d) Touch up paint as noted in section 5-3.

4. Helical Thread Inserts

Helical thread inserts (Helicoils) found to be damaged shall be repaired in accordance with the Eurocopter Standard Practices Manual, Section 20.03.04.404.

Part numbers:

1/4-28 insert: 3591-4CN375

3/8-24 insert: 3591-6CN563

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Quick Release Maintenance Step Installation may be applied to the right and/or left side of the helicopter. Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for installation, inspection, repair and removal instructions for the mounting provisions.

25-1 STEP INSTALLATION

Refer to Figure 4.

1. Set upper attachment into upper keyway in forward and aft beams.
2. Lift step until lower attachment fitting hits stop. Push fitting into keyway and slide step down until locked.

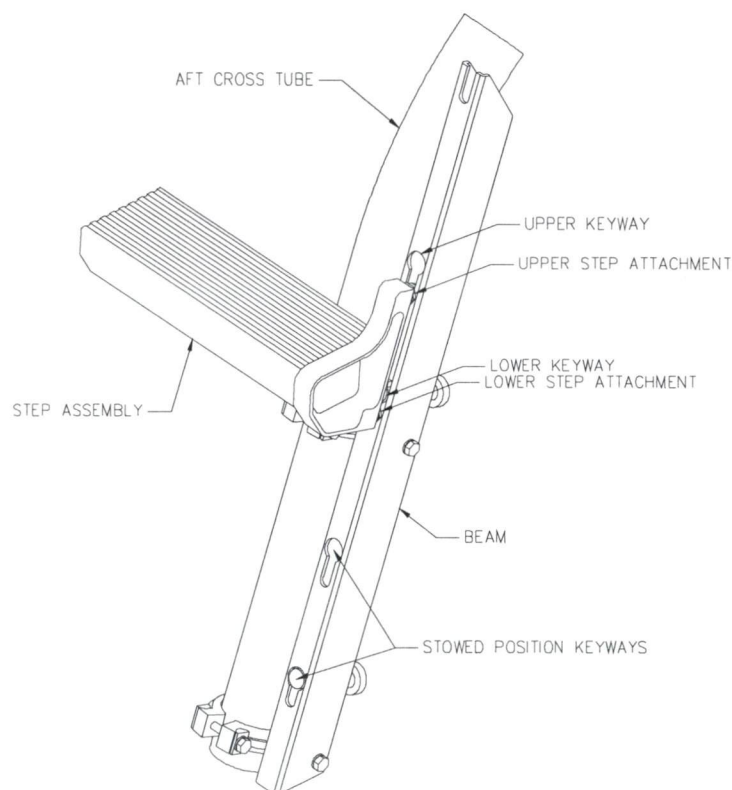


Figure 4 – Step Attachment
(High Installation shown, Low Installation similar)

25-2 STEP REMOVAL

Refer to Figure 4.

1. Pull knob at bottom end of forward beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
2. Pull knob at bottom end of aft beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.

3. Lift step until upper attachments are out of keyways on both beams and remove from helicopter.

25-3 WEIGHT AND BALANCE

Difference weight and balance configurations are required for the pilot. The first is the installation of Provisions only. The second is Provisions and Step in the upper position. The third is Provisions and step in the lower position (High Configuration only). These configurations are required because the step may be removed/installed in the field by the pilot.

Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
<i>Upper Position (High config.)</i>						
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	38.9	249.0
82701-01	Step Installation	16.4	135.6	2223.4	37.6	617.3
<i>Lower Position (Stowed, High config.)</i>						
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	41.7	266.9
82701-01	Step Installation	16.4	135.6	2223.4	38.7	635.2
<i>Low Configuration</i>						
78601-01	Low Provisions Installation	7.0	135.4	947.9	37.6	263.5
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	39.1	250.2
82702-01	Step Installation	13.4	135.6	1816.4	38.3	513.7

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
<i>Upper Position (High config.)</i>						
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	988.0	2865.2
82701-01	Step Installation	7.4	3441.3	25465.7	956.1	7075.0
<i>Lower Position (Stowed, High config.)</i>						
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	1059.0	3071.1
82701-01	Step Installation	7.4	3441.3	25465.7	983.9	7280.9
<i>Low Configuration</i>						
78601-01	Low Provisions Installation	3.2	3439.6	11006.7	955.0	3056.1
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	993.1	2880.1
82702-01	Step Installation	6.1	3440.4	20986.5	973.1	5936.2

Note: Lateral arms are given for right side installation. For installation on left side, lateral arms are negative.

25-4 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

AS350 & AS355 SERIES HELICOPTERS

FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE MAINTENANCE STEP

QUICK RELEASE MAINTENANCE STEP MODELS: 82701, 82702

Supplemental Type Certificate No. SH09-38

Sections I, II, III, IV, and V of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section II, Limitations, is mandatory. Section VI and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Eurocopter AS350 and AS355 Series Helicopters when fitted with the Quick Release Maintenance Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement refer to the Approved Flight Manual and other approved Flight Manual Supplements.



Revision 0
04 August 2009

Page 1 of 7
TRANSPORT CANADA APPROVED

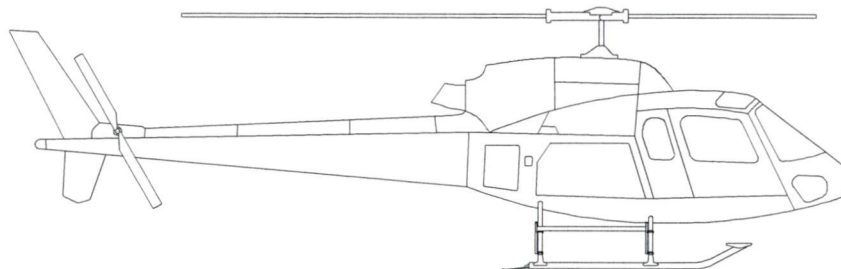
Table of Contents

I	General	3
II	Limitations	3
III	Emergency ProCedures	3
IV	Normal Procedures	3
V	Performance	3
VI	Installation / removal instructions	4
VII	Weight and Balance	5

Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	By
0	4 Aug 2009	None		

2. **MAINTENANCE STEP 82702.** The following weight and balance is for the maintenance step installed in accordance with drawing 82702.



Maintenance Step: Configuration 82702-01 (Low Mounted Provisions)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82702-01 ¹	6.4 lb	135.7 in	868.5 in*lb	39.1 in	250.2 in*lb
(RH)	2.9 kg	3446.8 mm	9 979.8 mm*kg	993.1 mm	2 880.1 mm*kg

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82702-01 ¹	6.4 lb	135.7 in	868.5 in*lb	- 39.1 in	- 250.2 in*lb
(LH)	2.9 kg	3446.8 mm	9 979.8 mm*kg	- 993.1 mm	- 2 880.1 mm*kg

¹ Weight and balance is for Maintenance Step only. Mounting beams are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

AERO DESIGN LTD.

FMS827.90

I GENERAL

No change.

II LIMITATIONS

No change.

III EMERGENCY PROCEDURES

No change.

IV NORMAL PROCEDURES

No change.

V PERFORMANCE

No change.

Revision 0
04 August 2009

AUG 07 2009

Page 3 of 7
TRANSPORT CANADA APPROVED

VI INSTALLATION / REMOVAL INSTRUCTIONS

The beams are installed in accordance with Supplemental Type Certificate SH08-16. The maintenance step is installed in accordance with drawing 82701 or 82702, as applicable. Removal of the step leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of step and which weight and balance amendment is in effect is required when step is installed or removed.

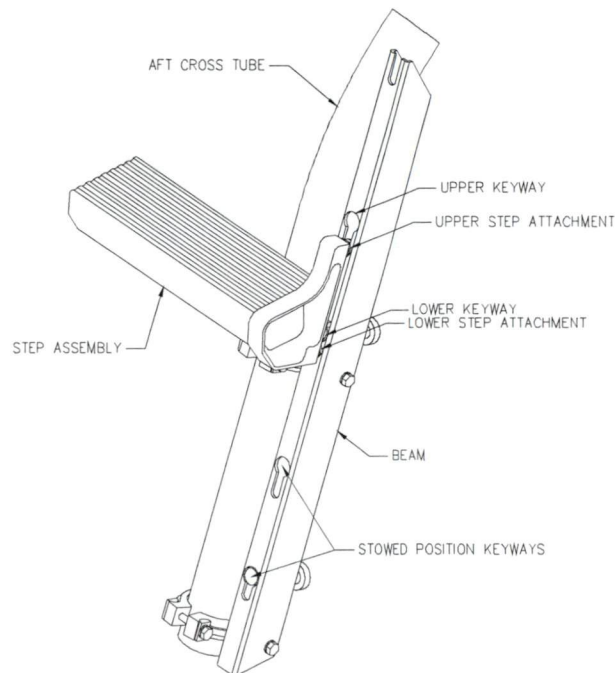


Figure 1 – Step Attachment Features

1. Installation - Refer to Figure 1.
 - a) Set step upper attachment into upper keyway in forward and aft beams.
 - b) Lift step until lower attachment fitting hits stop.
 - c) Push fitting into keyway and slide step down until locked.

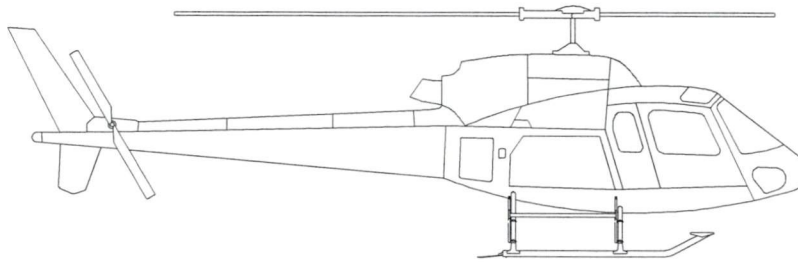
2. Removal - Refer to Figure 1.

- a) Pull knob at bottom end of forward beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
- b) Pull knob at bottom end of aft beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
- c) Lift step until upper attachments are out of keyways on both beams and remove step from helicopter

VII WEIGHT AND BALANCE

This section contains weight and balance information for maintenance step models 82701 and 82702. Each model has multiple configurations. Refer to the weight and balance information applicable to model and configuration installed.

1. **MAINTENANCE STEP 82701.** The following weight and balance is for the quick release maintenance step installed in accordance with drawing 82701. Upper and lower (stowed) positions are provided, either position is approved for flight.



Maintenance Step: Configuration 82701-01 (High Mounted Provisions)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82701-01 ¹ (upper position) (RH)	6.4 lb	135.7 in	868.5 in*lb	38.9 in	249.0 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	988.0 mm	2 865.2 mm*kg
82701-01 ¹ (stowed position) (RH)	6.4 lb	135.7 in	868.5 in*lb	41.7 in	266.9 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	1059.0 mm	3 071.1 mm*kg

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82701-01 ¹ (upper position) (LH)	6.4 lb	135.7 in	868.5 in*lb	- 38.9 in	- 249.0 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	- 988.0 mm	- 2 865.2 mm*kg
82701-01 ¹ (stowed position) (LH)	6.4 lb	135.7 in	868.5 in*lb	- 41.7 in	- 266.9 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	- 1059.0 mm	- 3 071.1 mm*kg



U.S. Department
of Transportation
**Federal Aviation
Administration**

Engine & Propeller Directorate

New York Aircraft Certification Office
1600 Stewart Avenue
4th Floor, Suite 410
Westbury, NY 11590
(516) 228-7300, Fax: (516) 794-5531

FEB 03 2010

Mr. G. Oucharek
A/Regional Superintendent, Aircraft Certification
Transport Canada, Prairie and Northern Region-Aircraft Certification
800-1600 Airport Road NE
Calgary, Alberta T2Z 6Z8
Canada

Subject: Issuance of Supplemental Type Certificate (STC) SR02770NY

Dear Mr. Oucharek:

This is in reference to your request dated September 24, 2009 (TCCA File Ref. C-09-0879) for the issuance of a Supplemental Type Certificate (STC), under terms of the US/Canada Bilateral Aviation Safety Agreement (BASA) for the Installation of Quick Release Maintenance Step, Maintenance Peg Step and Fixed Cabin Step on Eurocopter AS 350B, B1, B2, B3, BA, D, D1 and AS 355E, F, F1, F2, N, NP model aircraft. The corresponding FAA Project Number is ST6472NY-R (TCCA STC SH09-38, Issue No.1, approved August 7, 2009; issued August 7, 2009).

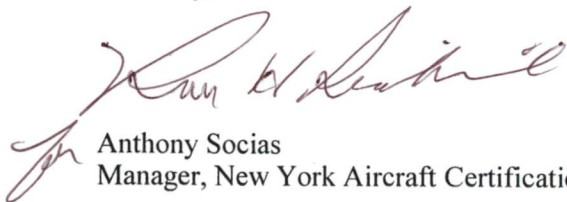
We have reviewed the information submitted by your office. In accordance with the current US/Canada Bilateral Aviation Safety Agreement, we have enclosed STC SR02770NY, issued January 26, 2010.

In accordance with the US/Canada bilateral relationship using TCCA compliance to the maximum extent, this STC includes references to documents that include the words "or later TCCA approved/accepted revisions." It is expected that as State of Design responsible for the STC, TCCA will coordinate any major/significant changes, as deemed appropriate, with the FAA prior to TCCA approval/acceptance.

Please forward the enclosed STC and a copy of "Information Concerning Your Responsibility as a Holder of a Supplemental Type Certificate Issued to a Canadian Applicant" to AERO Design Ltd. A copy of the STC and required documents should accompany each installation. Also, your attention is directed to the limitations and conditions specified in the STC.

If you have any questions relating to the above information, please contact Mr. Stephen Kowalski at (516) 228-7327.

Sincerely,



Anthony Socias
Manager, New York Aircraft Certification Office

Enclosures

**NEW ENGLAND REGION
NEW YORK AIRCRAFT CERTIFICATION OFFICE
1600 STEWART AVENUE, SUITE 410
WESTBURY, NEW YORK 11590**

**INFORMATION CONCERNING YOUR RESPONSIBILITY AS HOLDER OF A
SUPPLEMENTAL TYPE CERTIFICATE ISSUED TO A CANADIAN APPLICANT**

This STC is official indications of FAA approval of your installation and may be used to authorize identical installation on other aircraft of the same model, subject to the limitation noted in the STC. It may be transferred, or otherwise made available to another party by means of a licensee arrangement; however, you are requested to advise this office when you transfer or grant licensee rights to the STC in order that we may take the necessary recording or reissuance action.

If you plan to manufacture and sell parts for installation on type certificated aircraft, please review FAR 21.502, which is applicable to parts imported into the U.S.

A copy of the STC and required documents should accompany each kit and installation. Also, your attention is directed to the limitations and conditions specified in the STC.

As recipient of this approval, except as provided in FAR21.3(d), you are required to report any failure, malfunction, or defect in any product or part manufactured by you that you have determined has resulted or could result in any of the occurrences listed in FAR 21.3(c).

The report should be communicated initially by telephone and subsequently in writing to the Manager, New York Aircraft Certification Office, telephone (516) 228-7300, mailing address: 1600 Stewart Avenue, Suite 410, Westbury, New York 11590. This first contact should take place within 24 hours after it has been determined that the failure required to be reported has occurred.

FAA Form 8010-4, Malfunction or Defect Report, or any other appropriate format is acceptable in transmitting the required details.



Anthony Socias
Manager,
New York Aircraft Certification Office

United States of America
Department of Transportation -- Federal Aviation Administration

Supplemental Type Certificate

IMPORT

Number **SR02770NY**

This certificate issued to: Aero Design Ltd.
2013-39th Avenue NE
Calgary, Alberta, Canada
T2E 6R7

*certifies that the change in the type design for the following product with the limitations and conditions therefor as specified hereon meets the airworthiness requirements of Part * of the * Regulations.*

*Original Product -- Type Certificate Number:**

*Make:**

*Model:**

*See attached FAA Approved Model List
(AML) No. SR02770NY for the list of approved
aircraft models and applicable airworthiness
regulations.

Description of Type Design Change:

The installation of Quick Release Maintenance Step, Maintenance Peg Step and Fixed Cabin Step to be done in accordance with AERO Design Ltd. Document Control Lists as listed on AML SR02770NY.

Limitations and Conditions:

1. Operation must be in accordance with Aircraft Flight Manual Supplement, as listed on AML SR02770NY
2. Instructions for Continued Airworthiness as listed on AML SR02770NY are required for this installation.
3. The installer must determine whether this design change is compatible with previously approved modifications.
4. If the holder agrees to permit another person to use this certificate to alter a product, the holder must give the other person written evidence of that permission.

This certificate and the supporting data which is the basis for approval shall remain in effect until surrendered, suspended, revoked or a termination date is otherwise established by the Administrator of the Federal Aviation Administration.

Date of application: September 24, 2009

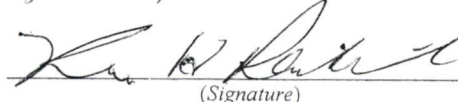
Date reissued:

Date of issuance: January 26, 2010

Date amended:



By direction of the Administrator


(Signature)

Anthony Socias
Manager
New York Aircraft Certification Office

(Title)

FAA APPROVED MODEL LIST (AML) NO. SR02270NY
AERO Design Ltd.
FOR

INSTALLATION OF QUICK RELEASE MAINTENANCE STEP, MAINTENANCE PEG STEP AND FIXED CABIN STEP

Original Issue Date: January 26, 2010

ITEM	PART	REGULATION	MAKE	MODEL	TCDS	CONFIGURATION			REQUIRED DOCUMENTATION		AML AMEND- MENT DATE
						DESIG- NATION	DESCRIPTION	DOCUMENT CONTROL LIST	INSTRUCTIONS for CONTINUED AIRWORTHINESS	FLIGHT MANUAL SUPPLEMENT	
1	27	Federal Aviation	Eurocopter	AS 350 B, B1, B2, B3, BA, D, D1	H9EW	A	Quick Release Maintenance Step: Installation of the External Attachment Provisions (Configuration A), per STC SR02680NY is a prerequisite for this installation.	Aero Design Ltd. Document Control List DCL827A-1 Revision 2, dated 7 August 2009, Transport Canada Approved 7 August 2009, or later Transport Canada approved revisions.	Aero Design Ltd. ICA 827.91 Rev. 1, dated 23 July 2009, Transport Canada accepted 7 August 2009 or later Transport Canada accepted revision.	AERO Design Ltd. Flight Manual Supplement FMS827.90 Revision 0, dated 4 August 2009, Transport Canada Approved 7 August 2009 or later Transport Canada approved revisions.	
2				AS 355 E, F, F1, F2, N, NP	H11EU						

FAA APPROVED MODEL LIST (AML) NO. SR02270NY

AERO Design Ltd.

FOR

INSTALLATION OF QUICK RELEASE MAINTENANCE STEP, MAINTENANCE PEG STEP AND FIXED CABIN STEP

ITEM	PART	REGULATION	MAKE	MODEL	TCDS	CONFIGURATION			REQUIRED DOCUMENTATION		AML AMEND- MENT DATE
						DESIG- NATION	DESCRIPTION	DOCUMENT CONTROL LIST	INSTRUCTIONS for CONTINUED AIRWORTHINESS	FLIGHT MANUAL SUPPLEMENT	
1, continued	27	Federal Aviation	Eurocopter	AS 350 B, B1, B2, B3, BA, D, D1	H9EW	B	Maintenance Peg Step: Installation of the External Attachment Provisions (Configuration A), per STC SR02680NY is a prerequisite for this installation.	Aero Design Ltd. Document Control List DCL827-2, Revision 1, dated 7 August 2009, Transport Canada Approved 7 August 2009, or later Transport Canada approved revisions.	Aero Design Ltd. ICA 827.93 Rev. 1, dated 4 August 2009, Transport Canada accepted 7 August 2009 or later Transport Canada accepted revision.	N/A	
2, continued				AS 355 E, F, F1, F2, N, NP	H11EU						

FAA APPROVED MODEL LIST (AML) NO. SR02270NY

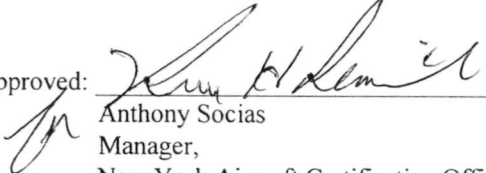
AERO Design Ltd.

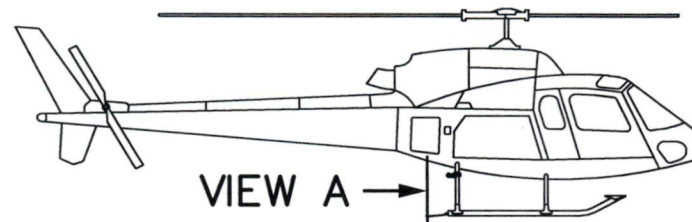
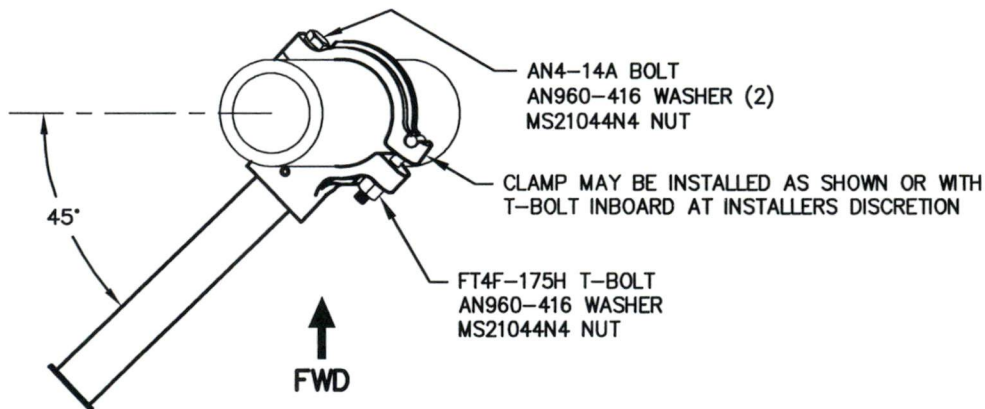
FOR

INSTALLATION OF QUICK RELEASE MAINTENANCE STEP, MAINTENANCE PEG STEP AND FIXED CABIN STEP

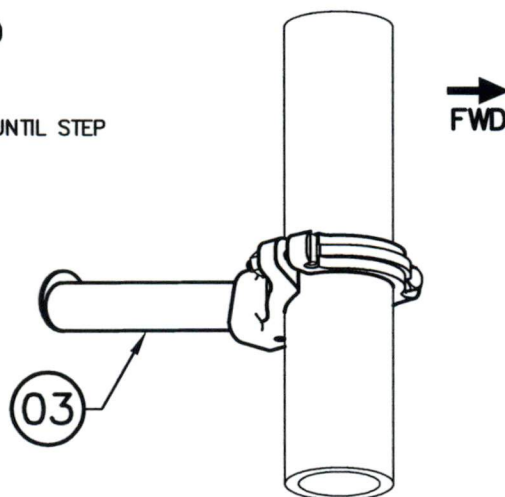
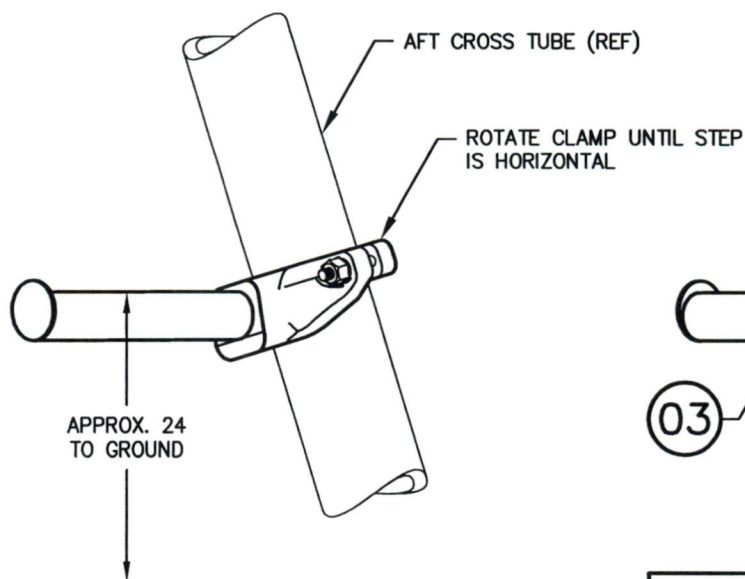
ITEM	PART	REGULATION	MAKE	MODEL	TCDS	CONFIGURATION			REQUIRED DOCUMENTATION		AML AMEND- MENT DATE
						DESIG- NATION	DESCRIPTION	DOCUMENT CONTROL LIST	INSTRUCTIONS for CONTINUED AIRWORTHINESS	FLIGHT MANUAL SUPPLEMENT	
1, continued	27	Federal Aviation	Eurocopter	AS 350 B, B1, B2, B3, BA, D, D1	H9EW	C	Fixed Cabin Step	Aero Design Ltd. Document Control List DCL827-3, Revision 3, dated 28 July 2009 or later Transport Canada approved revision.	Aero Design Ltd. ICA 827.92 Rev. 1, dated 28 July 2009, Transport Canada accepted 7 August 2009 or later Transport Canada accepted revision.	N/A	
2, continued				AS 355 E, F, F1, F2, N, NP	H11EU						

FAA Approved:


Anthony Socias
Manager,
New York Aircraft Certification Office



- (01) INSTALLATION (RIGHT)
- (02) INSTALLATION (LEFT)
- NOT TO SCALE



VIEW A

LOOKING FORWARD AT AFT CROSS TUBE

APPROVALS	DATE	AERO DESIGN LTD. CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca			
DRAWN: JEFF CLARKE	16 DEC 2009				
CHECKED: E. BURGOIN					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS ANGLES X.XXX ±0.010 ±1/2° X.XX ±0.03 X.X ±0.1		EUROCOPTER AS350 & AS355 SERIES MAINTENANCE STEP INSTALLATION PEG STEP INSTALLATION			
NOT TO SCALE		DWG. SIZE	DWG. NO.	REV.	
SHEET 1 OF 2		A4	82707	0	

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE	BJC	NOV 06/08

NOTES

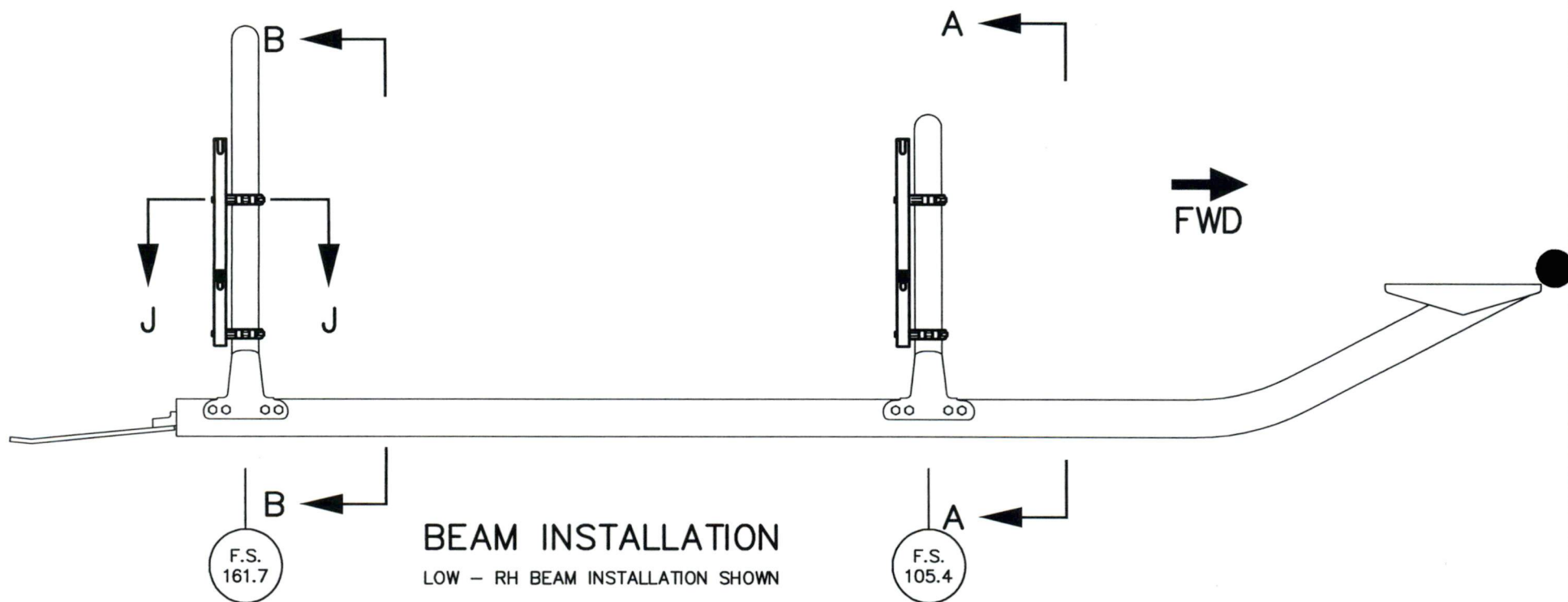
1. INSTALLATION MAY BE APPLIED TO THE RIGHT AND/OR LEFT SIDE.
2. THIS INSTALLATION IS NOT COMPATIBLE WITH THE AERO DESIGN LTD. HIGH MOUNTING PROVISIONS IN ACCORDANCE WITH DRAWING 78601.
3. TORQUE MS21044N4 NUTS TO 50-70 INCH-POUNDS.

2	2	MS21044N4	NUT
3	3	AN960-416	WASHER
1	1	AN4-14A	BOLT
1	1	FT4F-175H	T-BOLT
1	1	82740-01	03 STEP ASSEMBLY (RIGHT)
		82707-02	02 PEG STEP INSTALLATION (LEFT)
		82707-01	01 PEG STEP INSTALLATION (RIGHT)
02	01	PART NO.	ITEM DESCRIPTION
QTY	LIST OF MATERIALS		

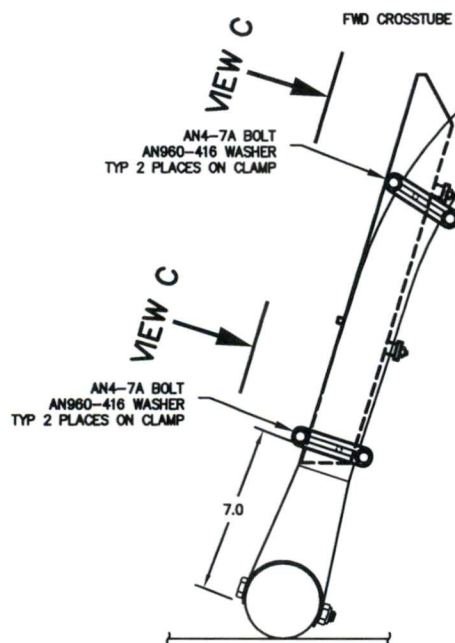
WEIGHT AND BALANCE – METRIC						
ITEM	DESCRIPTION	WEIGHT (KG)	LONGITUDINAL		LATERAL	
			ARM (MM)	MOMENT (MM-KG)	ARM (MM)	MOMENT (MM-KG)
01	MAINTENANCE STEP INST'N (RIGHT)	0.45	4160.5	1872.2	825.5	371.5
02	MAINTENANCE STEP INST'N (LEFT)	0.45	4160.5	1872.2	-825.5	-371.5

WEIGHT AND BALANCE – STANDARD						
ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
01	MAINTENANCE STEP INST'N (RIGHT)	1.0	163.8	163.8	32.5	32.5
02	MAINTENANCE STEP INST'N (LEFT)	1.0	163.8	163.8	-32.5	-32.5

NOTICE THIS DRAWING CONTAINS INFORMATION AND DATA WHICH IS PROPRIETARY TO AERO DESIGN LTD. THIS DRAWING, OR ANY PORTION THEREOF, MAY NOT BE REPRODUCED, COPIED, OR DUPLICATED IN ANY MANNER, NOR USED FOR MANUFACTURING WITHOUT THE WRITTEN CONSENT OF AERO DESIGN LTD. BY ACCEPTING THIS DRAWING FOR REFERENCE, THE RECIPIENT AGREES TO HOLD AERO DESIGN LTD. HARMLESS FROM THE USE, OR MISUSE, OF THIS DRAWING OR THE INFORMATION CONTAINED THEREON.	APPROVALS	DATE	AERO DESIGN LTD. CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca			
	DRAWN: JEFF CLARKE	16 DEC 2009				
	CHECKED: E. BURGOIN		EUROCOPTER AS350 & AS355 SERIES MAINTENANCE STEP INSTALLATION PEG STEP INSTALLATION			
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS ANGLES X.XXX ±0.010 ±1/2° X.XX ±0.03 X.X ±0.1					
	NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.		
	SHEET 2 OF 2	A4	82707	0		

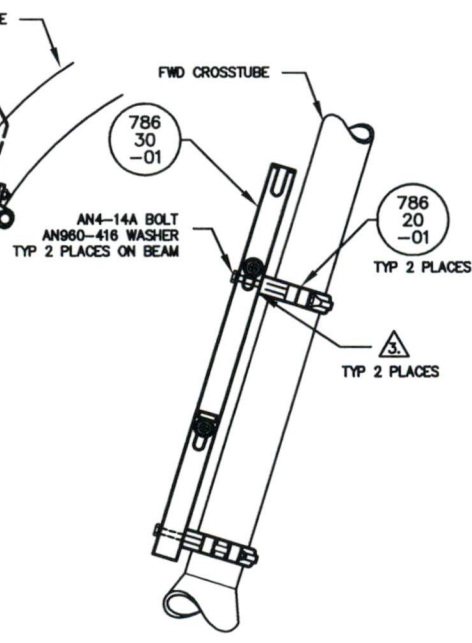


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	DRAWN: R. RATHWELL	22 FEB 08	EUROCOPTER AS350 & AS355 SERIES ATTACHMENT PROVISION BEAMS INSTALLATION			
	CHECKED: E. BURGOIN					
	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS ANGLES X.XXX ±0.010 ±1/2" X.XX ±0.03 X.X ±0.1					
	SCALE 1 : 4		DWG. SIZE	DWG. NO.	REV.	
SHEET 1 OF 6		A4	78601	3		

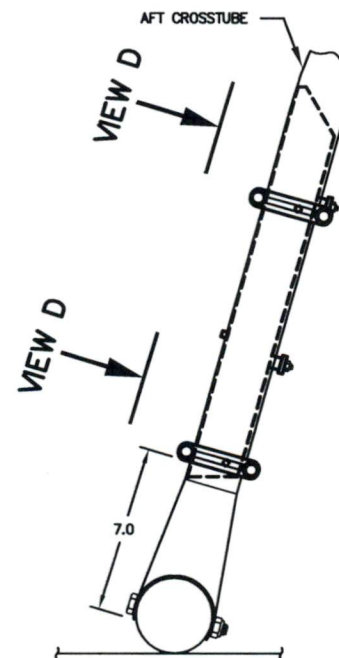


DETAIL A

FWD BEAM
NOTE: CLAMP ASSEMBLY ORIENTATION
TOP CLAMP ASSEMBLY - LUG OUTBOARD
BOTTOM CLAMP ASSEMBLY - LUG INBOARD

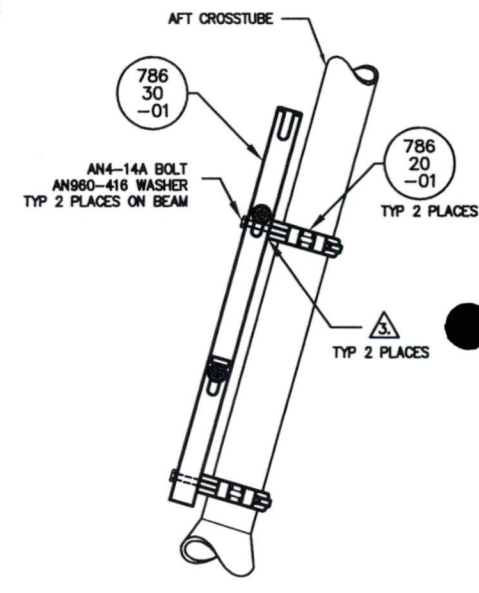


DETAIL C



DETAIL B

AFT BEAM
NOTE: CLAMP ASSEMBLY ORIENTATION
TOP CLAMP ASSEMBLY - LUG INBOARD
BOTTOM CLAMP ASSEMBLY - LUG INBOARD



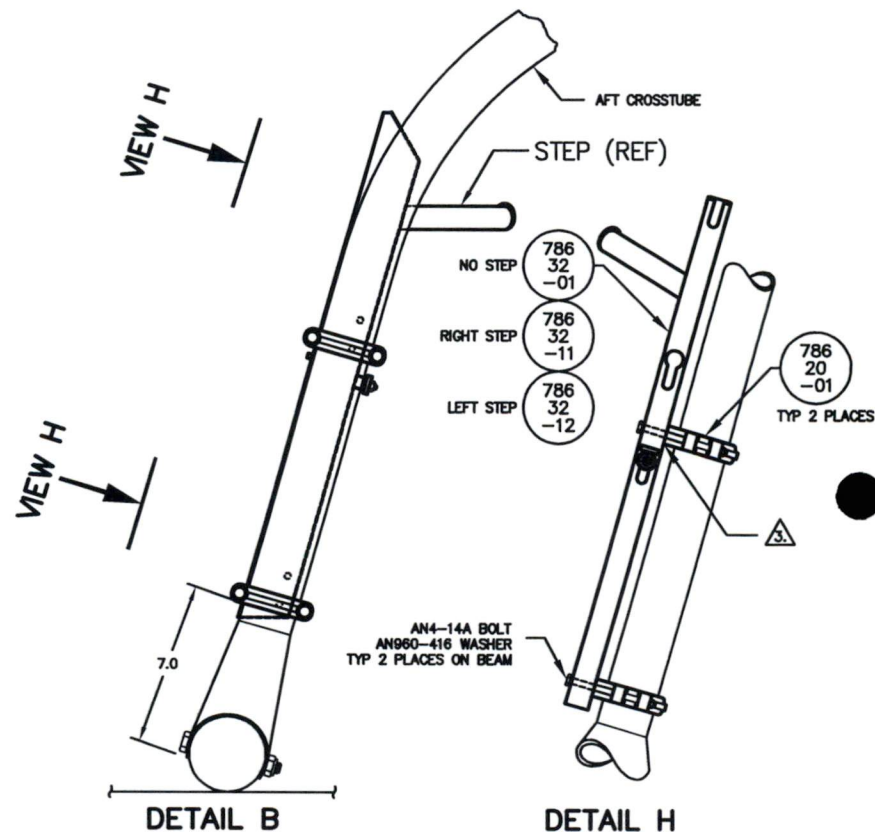
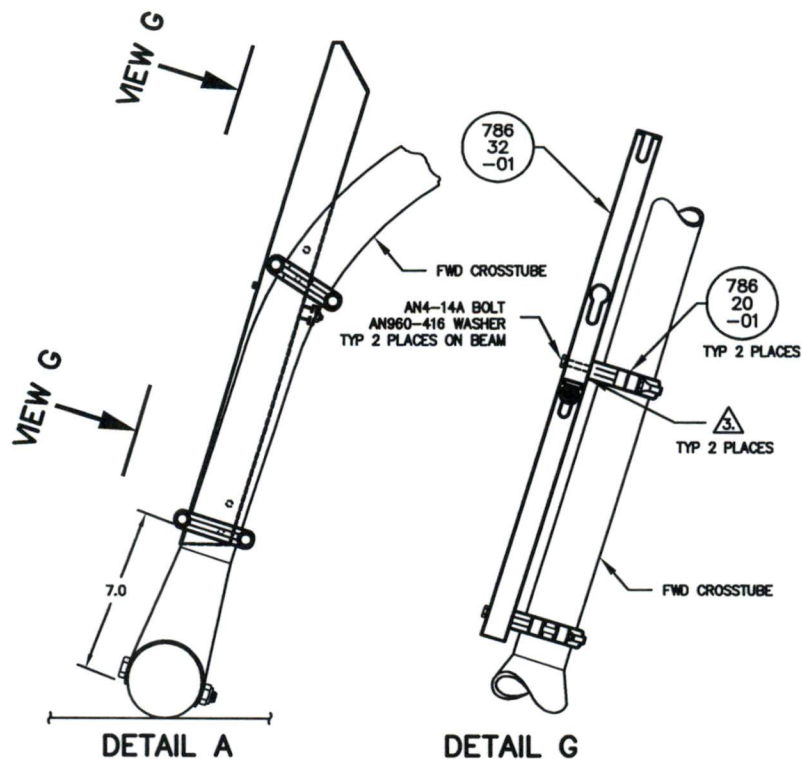
DETAIL D

786 01 -01-01 BEAM INSTALLATION - LOW RH
SHOWN SCALE 1 : 4
786 01 -01-02 BEAM INSTALLATION - LOW LH
OPPOSITE

NOTICE
THIS DRAWING CONTAINS INFORMATION AND DATA WHICH IS PROPRIETARY TO AERO DESIGN LTD. THIS DRAWING, OR ANY PORTION THEREOF, MAY NOT BE REPRODUCED, COPIED, OR DUPLICATED IN ANY MANNER, NOR USED FOR MANUFACTURING WITHOUT THE WRITTEN CONSENT OF AERO DESIGN LTD. BY ACCEPTING THIS DRAWING FOR REFERENCE, THE RECIPIENT AGREES TO HOLD AERO DESIGN LTD. HARMLESS FROM THE USE, OR MISUSE, OF THIS DRAWING OR THE INFORMATION CONTAINED THEREON.

APPROVALS	DATE
DRAWN: R. RATHWELL	22 FEB 08
CHECKED: E. BURGOIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:	
DECIMALS	ANGLES
X.XXX ±0.010	±1/2°
X.XX ±0.03	
X.X ±0.1	

AERO DESIGN LTD. CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca				
EUROCOPTER AS350 & AS355 SERIES ATTACHMENT PROVISION BEAMS INSTALLATION				
SCALE 1 : 4	DWG. SIZE	DWG. NO.	REV.	
SHEET 2 OF 6	A4	78601	3	



786 01 -03-01

786 01 -03-02

BEAM INSTALLATION - MID RH
SHOWN (WITHOUT STEP IN DETAIL B AND H)

BEAM INSTALLATION - MID LH
OPPOSITE (WITHOUT STEP IN DETAIL B AND H)

786 01 -03-11

786 01 -03-12

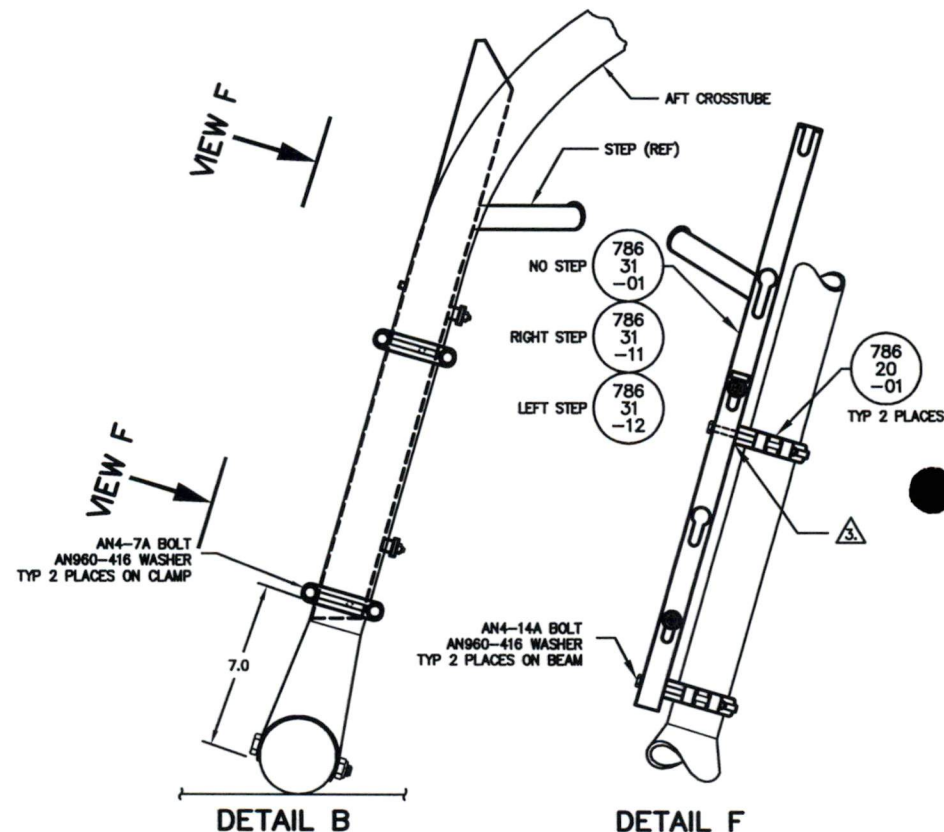
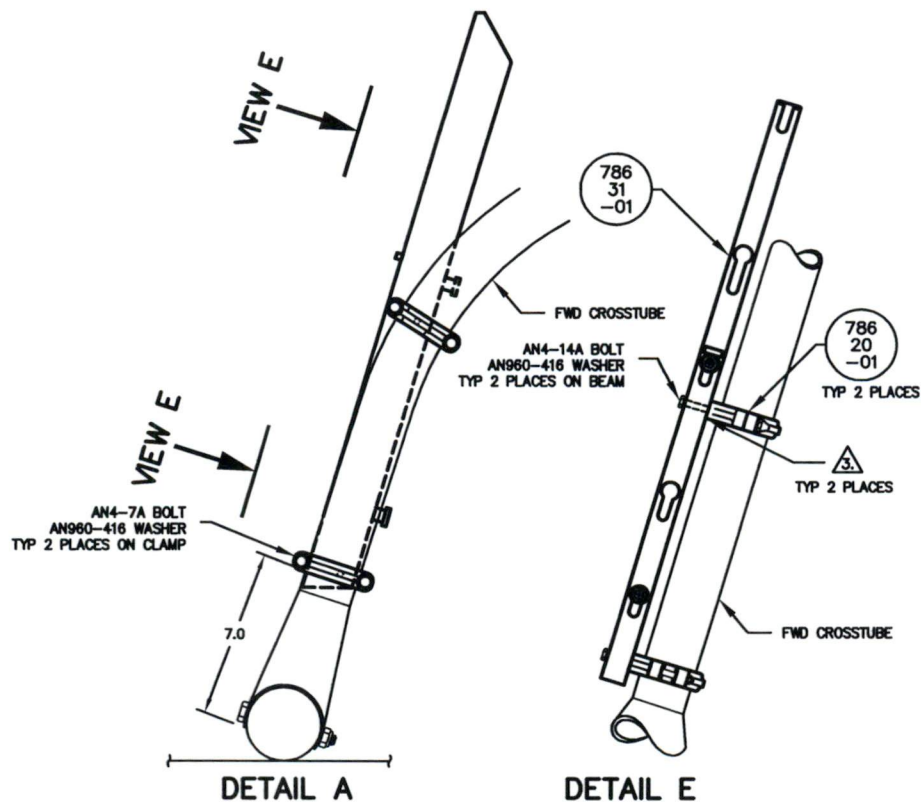
BEAM INSTALLATION - MID RH WITH STEP
SHOWN

BEAM INSTALLATION - MID LH WITH STEP
OPPOSITE

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X.XX ±0.03	
X.X ±0.1	

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EUROCOPTER AS350 & AS355 SERIES ATTACHMENT PROVISION BEAMS INSTALLATION			
SCALE 1 : 4	DWG. SIZE	DWG. NO.	REV.
SHEET 4 OF 6	A4	78601	3



786 01 -02-01 BEAM INSTALLATION - HIGH RH
SHOWN (WITHOUT STEP IN DETAIL B AND F)

786 01 -02-02 BEAM INSTALLATION - HIGH LH
OPPOSITE (WITHOUT STEP IN DETAIL B AND F)

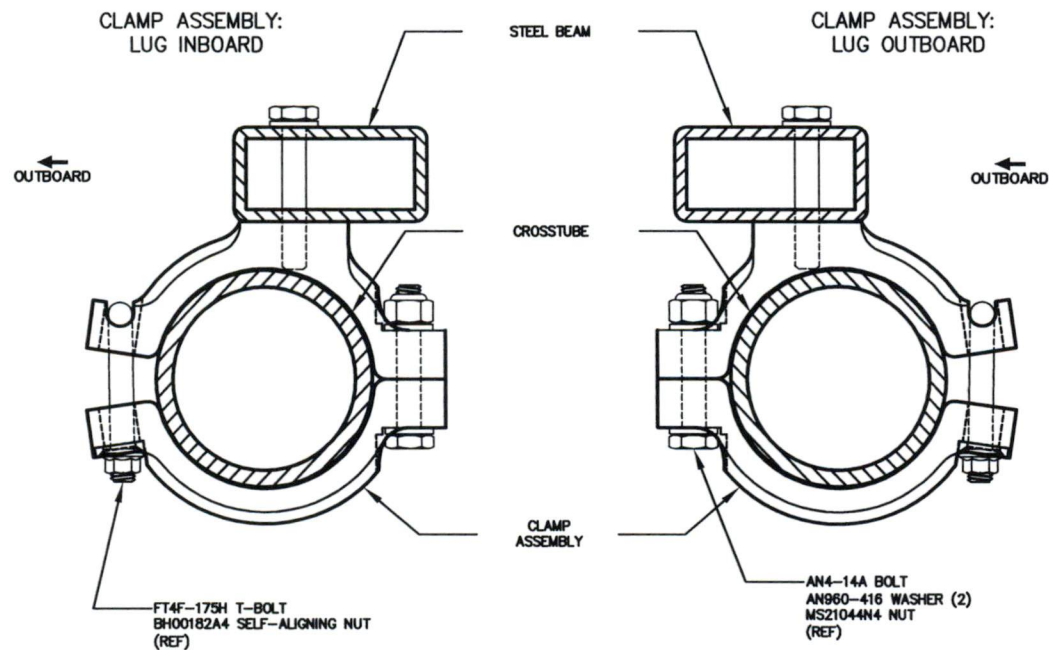
786 01 -02-11 BEAM INSTALLATION - HIGH RH WITH STEP
SHOWN

786 01 -02-12 BEAM INSTALLATION - HIGH LH WITH STEP
OPPOSITE

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X.XX ±0.03	
X.X ±0.1	

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SCALE 1 : 4	DWG. SIZE	DWG. NO.	REV.
SHEET 3 OF 6	A4	78601	3



DETAIL J

CLAMP ORIENTATION
TYPICAL
SCALE: 1:2

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	DECIMALS		ANGLES							
	X.XXX ±0.010		±1/2°		SCALE 1 : 4		DWG. SIZE	DWG. NO.	REV.	
	X.XX ±0.03				SHEET 5 OF 6		A4	78601	3	
	X.X ±0.1									

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE		
1	ADDED LH CONFIG DETAILS	RR	05 MAR 09
2	CHANGED CLAMP FASTENERS	BJC	24 JUN 09
3	ADD MID BEAM, CHANGE DRAWING TO LETTER SIZE SHEETS	BJC	17 DEC 09

NOTES:

1. ATTACHMENT OF ANY EQUIPMENT TO EXTERNAL ATTACHMENT PROVISIONS
REQUIRES TRANSPORT CANADA APPROVAL.

2. TORQUE AN4 BOLTS TO 50-70 INCH-POUNDS.

3. SHIM USING COMMERCIAL 1/4" STAINLESS STEEL FENDER WASHERS IF REQUIRED. REFER TO ICA764.90 FOR INSTRUCTIONS.

4. REFER TO ICA764.90 FOR WEIGHT AND BALANCE INFORMATION.

A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	--	1/4" STAINLESS STEEL FENDER WASHER
A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	A/R	AN4-15A	BOLT (ALTERNATE)
4	4	4	4	4	4	4	4	4	4	AN4-14A	BOLT
1										78632-12	08 MID BEAM ASSEMBLY WITH LEFT STEP
	1									78632-11	07 MID BEAM ASSEMBLY WITH RIGHT STEP
1	1	2	2							78632-01	06 MID BEAM ASSEMBLY
				1						78631-12	08 HIGH BEAM ASSEMBLY WITH LEFT STEP
					1					78631-11	07 HIGH BEAM ASSEMBLY WITH RIGHT STEP
				1	1	2	2			78631-01	06 HIGH BEAM ASSEMBLY
								2	2	78630-01	05 LOW BEAM ASSEMBLY
4	4	4	4	4	4	4	4	4	4	78620-01	04 CLAMP ASSEMBLY
										78601-03-12	03 BEAM INSTALLATION - MID LH WITH STEP
										78601-03-11	03 BEAM INSTALLATION - MID RH WITH STEP
										78601-03-02	03 BEAM INSTALLATION - MID LH
										78601-03-01	03 BEAM INSTALLATION - MID RH
										78601-02-12	02 BEAM INSTALLATION - HIGH LH WITH STEP
										78601-02-11	02 BEAM INSTALLATION - HIGH RH WITH STEP
										78601-02-02	02 BEAM INSTALLATION - HIGH LH
										78601-02-01	02 BEAM INSTALLATION - HIGH RH
										78601-01-02	01 BEAM INSTALLATION - LOW LH
										78601-01-01	01 BEAM INSTALLATION - LOW RH
-03-12	-03-11	-03-02	-03-01	-02-12	-02-11	-02-02	-02-01	-01-02	-01-01	PART NO.	ITEM DESCRIPTION
QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	QTY	LIST OF MATERIALS	

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SCALE 1 : 4	DWG. SIZE	DWG. NO.	REV.
SHEET 6 OF 6	A4	78601	3

Jeff Clarke

From: Oucharek, Greg [greg.oucharek@tc.gc.ca]
Sent: January 21, 2010 6:35 PM
To: Jeff Clarke
Subject: RE: SH09-38 - AS350 Steps

C-10-0064₂

Jeff,

Please open a NAPA file via NDWL and upload as an "other regional project" ... "revision of data without reissue of the approval" (or something like that?). When done, simply let me know and I can close off.

By the sounds of your note there is nothing for me to action?

Greg

From: Jeff Clarke [mailto:jeff@aerodesign.ca]
Sent: Thu 1/21/2010 4:13 PM
To: Oucharek, Greg
Subject: SH09-38 - AS350 Steps

Greg,

We have added a new height of mounting beam to our Cargo Basket STC, which includes provisions for mounting the Quick Release Maintenance Step (SH09-38, Configuration A) in a new position. The new position is in between the two existing positions. Since this is not a new overall configuration for the STC, and the STC states "or later approved revision" of the Document Control List, the STC does not need to be re-issued for this change. The flight manual supplement is revised in the un-approved sections only, so I have left existing stamp on the cover. The ICA is revised to add weight and balance for the new position.

The following attached documents relate to this change:

Installation drawing 82708, Rev. 0 ✓
Instructions for Continued Airworthiness ICA827.91, Rev. 2 ✓ and MSI53_91 Rev. 1 ✓
Flight Manual Supplement FMS827.90, Rev. 1 ✓
Document Control List DCL827-1, Rev. 3 ✓
AE-100 Form AE827-1, Rev. 1 ✓

We have also added an alternate peg step installation. I have included it with the existing peg step (SH09-38, Configuration B). Since this is not a new overall configuration for the STC, and the STC states "or later approved revision" of the Document Control List, the STC does not need to be re-issued for this change. The ICA is revised to add the alternate peg step.

The following attached documents relate to this change:

Fabrication drawing 82740, Rev. 0 ✓

Installation drawing 82707, Rev. 0 ✓

Instructions for Continued Airworthiness, ICA827.93, Rev. 1 ✓ and MSI53_93 Rev. 1 ✓

Engineering Report ER827.01, Rev. 2 ✓

Document Control List DCL827-2, Rev. 2 ✓

AE-100 Form AE827-2, Rev. 1 ✓

Please let me know if you have any questions.

Regards,

Jeff Clarke, CET

AERO Design Ltd.

2013 39th Avneue NE

Calgary, Alberta, Canada

T2E 6R7

Phone: 403.250.8027

Fax: 403.250.8333

Jeff Clarke

From: Jeff Clarke [jeff@aerodesign.ca]

Sent: January 21, 2010 2:13 PM

To: 'Oucharek, Greg'

Subject: SH09-38 - AS350 Steps

Napa C-10-0064

Greg,

We have added a new height of mounting beam to our Cargo Basket STC, which includes provisions for mounting the Quick Release Maintenance Step (SH09-38, Configuration A) in a new position. The new position is in between the two existing positions. Since this is not a new overall configuration for the STC, and the STC states "or later approved revision" of the Document Control List, the STC does not need to be re-issued for this change. The flight manual supplement is revised in the un-approved sections only, so I have left existing stamp on the cover. The ICA is revised to add weight and balance for the new position.

The following attached documents relate to this change:

Installation drawing 82708, Rev. 0

Instructions for Continued Airworthiness ICA827.91, Rev. 2 and MSI53_91 Rev. 1

Flight Manual Supplement FMS827.90, Rev. 1

Document Control List DCL827-1, Rev. 3

AE-100 Form AE827-1, Rev. 1

We have also added an alternate peg step installation. I have included it with the existing peg step (SH09-38, Configuration B). Since this is not a new overall configuration for the STC, and the STC states "or later approved revision" of the Document Control List, the STC does not need to be re-issued for this change. The ICA is revised to add the alternate peg step.

The following attached documents relate to this change:

Fabrication drawing 82740, Rev. 0

Installation drawing 82707, Rev. 0

Instructions for Continued Airworthiness, ICA827.93, Rev. 1 and MSI53_93 Rev. 1

Engineering Report ER827.01, Rev. 2

Document Control List DCL827-2, Rev. 2

AE-100 Form AE827-2, Rev. 1

Please let me know if you have any questions.

Regards,

Jeff Clarke, CET

AERO Design Ltd.
2013 39th Avenue NE
Calgary, Alberta, Canada
T2E 6R7

Phone: 403.250.8027

Fax: 403.250.8333

21/01/2010

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
INSTALLATION DOCUMENTS		
82703	Maintenance Peg Step Installation	0
82707	Maintenance Peg Step Installation (Stand Alone)	0
ICA827.93	Instructions for Continued Airworthiness	1
 FABRICATION DOCUMENTS		
82735	Step Assembly	0
82740	Step Assembly	0
 ENGINEERING DOCUMENTS		
ER827.01	Engineering Report	2

APPROVAL: <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p>Transport Canada E. BURGAIN DAR 290M</p> <p style="text-align: center;">APPROVED</p> <p>By: </p> <p>App'l No. <u>5409-38</u></p> <p>App'l Date <u>07 AUG 2009</u></p> <p>Issue No. <u>1</u></p> <p>Issue Date <u>07 AUG 2009</u></p> <p style="text-align: center;">THIS BCL APPROVED 21 JAN 2010</p> <p style="text-align: right;"><i>PB.</i></p> </div>	<p>ORIGINAL DATE: 7 November, 2008</p> <p>REVISION DATE: 17 December, 2009</p>	<p style="text-align: center;">AERO DESIGN LTD.</p> <p style="text-align: center;">2013 – 39th Ave NE, Calgary, Alberta, T2E 6R7 Ph. (403) 250-8027 Fax. (403) 250-8333 www.aerodesign.ca</p>
<p>SHEET 1 OF 1</p>		<p style="text-align: center;">Eurocopter AS350 & AS355 Series Maintenance Peg Step Installation</p>
<h2 style="margin: 0;">DCL827-2</h2>		<p>Rev.</p> <h2 style="margin: 0;">2</h2>

FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE827-2 Initial Issue Date: 7 August, 2009 Revision: 1 Revision Date: 15 January 2010	
Aircraft Mfr: Eurocopter Aircraft Model: AS350 & AS355 Series Registration: ALL ELIGIBLE	Model / Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	Approval No.: SH09-38 Delegation No.: 290M Delegate Name: E. Burgoin Company: AERO Design Ltd.	

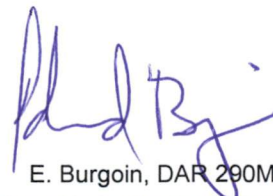
LIST OF APPROVED REPORTS AND DATA

Document Number	Revision	Document Title	Compliance Status
DCL827-2 ER827.01 82707 82740	2 2 0 0	Document Control List and all documents referred to therein Engineering Report Maintenance Peg Step Installation (Stand Alone) Maintenance Peg Step Fabrication	As per Compliance Program, CP827, Revision 0
DATA APPROVED BY TRANSPORT CANADA			
ICA827.93	1	Instructions for Continued Airworthiness	

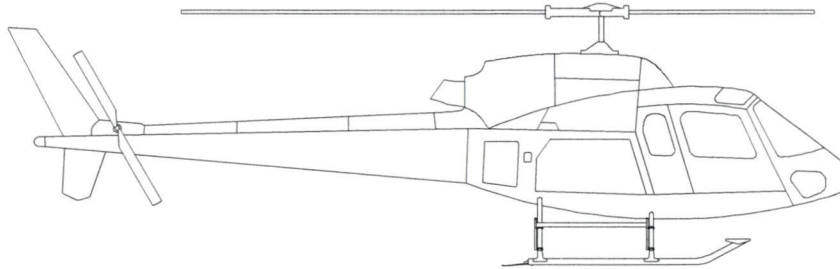
CERTIFICATION

UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIREMENTS.

I THEREFORE ☒ RECOMMEND FOR APPROVAL OF THESE DATA (ICA827.93)
☒ APPROVE THESE DATA


 E. Burgoin, DAR 290M

2. **MAINTENANCE STEP 82702.** The following weight and balance is for the maintenance step installed in accordance with drawing 82702.



Maintenance Step: Configuration 82702-01 (Low Mounted Provisions)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82702-01 ¹	6.4 lb	135.7 in	868.5 in*lb	39.1 in	250.2 in*lb
(RH)	2.9 kg	3446.8 mm	9 979.8 mm*kg	993.1 mm	2 880.1 mm*kg

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82702-01 ¹	6.4 lb	135.7 in	868.5 in*lb	- 39.1 in	- 250.2 in*lb
(LH)	2.9 kg	3446.8 mm	9 979.8 mm*kg	- 993.1 mm	- 2 880.1 mm*kg

¹ Weight and balance is for Maintenance Step only. Mounting beams are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

Superceded

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.93

EUROCOPTER AS350 & AS355 SERIES MAINTENANCE PEG STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Maintenance Peg Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-2, Revision 2, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 1
Date: 17 December 2009

AERO Design Ltd.
Engineering Consultants

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7
Phone: (403) 250-8027
Fax: (403) 250-8333
E-Mail: info@aerodesign.ca

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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0	4 August 2009		Original Issue
1	17 December 2009		

LIST OF EFFECTIVE PAGES

List of Revisions

 Revision 0 (Original Issue)
 Revision 1

 4 August 2009
 17 December 2009

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	1
Revision Record/List of Effective Pages	2	1
Table of Contents	3	1
00-00-00	4-6	1
04-00-00	7	0
05-00-00	8-9	1
25-50-00	10-12	1

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CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Maintenance Peg Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness
LH - Left Hand
RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Maintenance Peg Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

The Maintenance Peg Step (82703-01/-02) requires installation of the High Mounted Attachment Provisions in accordance with STC SH08-16.

The Maintenance Peg Step (82707-01/-02) is not compatible with High Mounted Attachment Provisions in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION (82703 CONFIGURATION)

The Maintenance Peg Step (82703-01/-02) installation consists of a tube that sticks out inboard and aft from the High Mounted External Attachment Provision. The Maintenance Peg Step is required because installation of the High Mounted External Attachment Provision requires the existing step provided by Eurocopter to be removed, if installed.

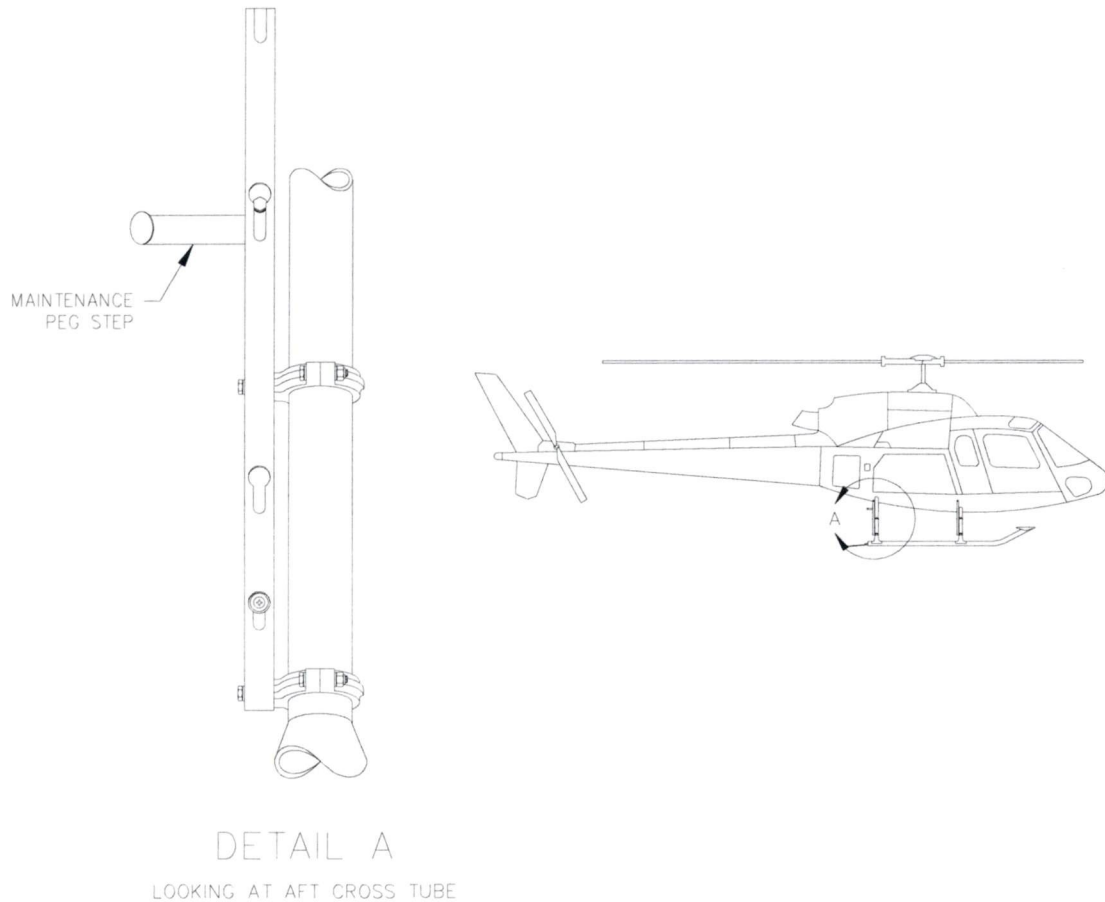


Figure 0-1 – Maintenance Peg Step Installation

0-6 GENERAL DESCRIPTION (82707 CONFIGURATION)

The Stand Alone Maintenance Peg Step installation (82707-01/-02) consists of a fitting attached to the aft cross tube with a tube that sticks out inboard and aft from the cross tube. The Maintenance Peg Step is required to aid access to the helicopter for maintenance activities.

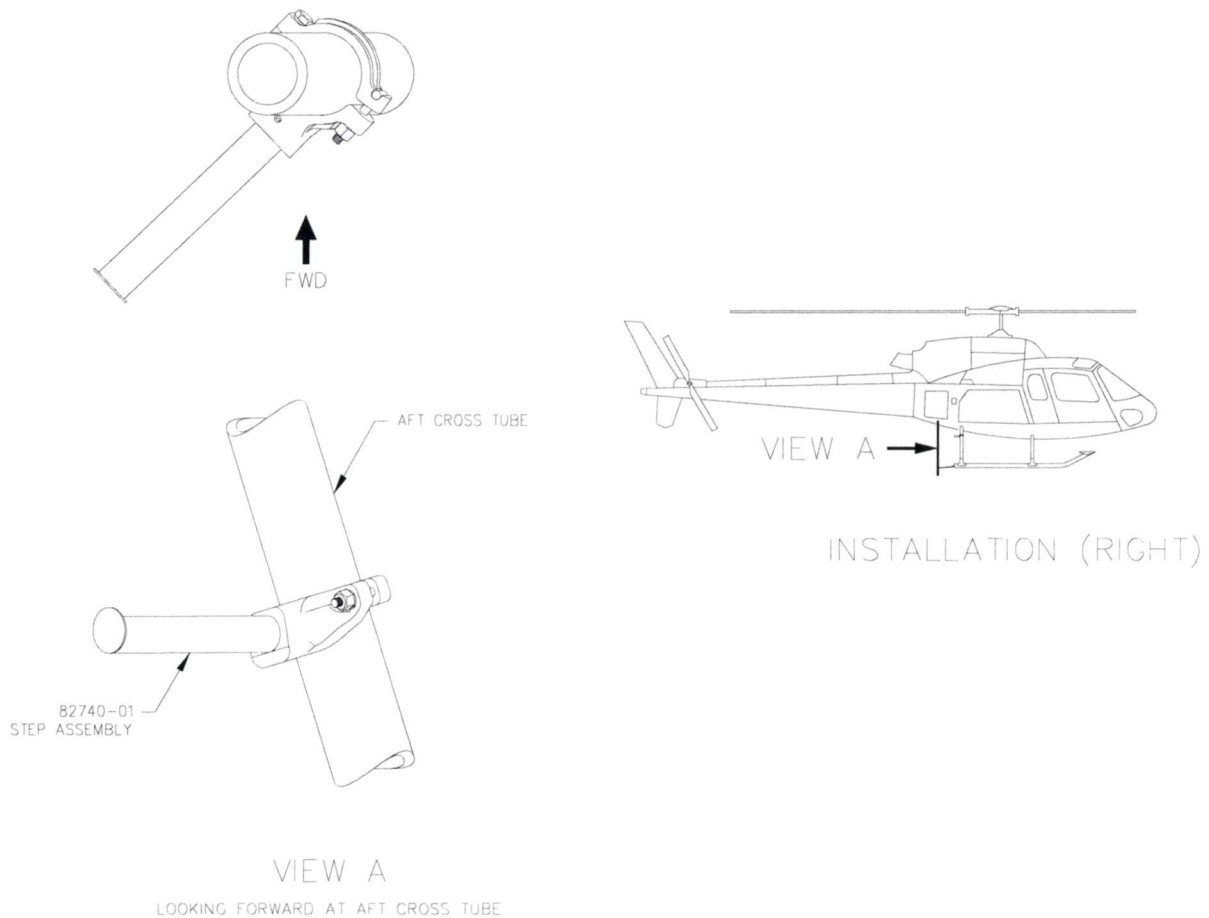


Figure 0-2 – Maintenance Peg Step Installation

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Maintenance Peg Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Maintenance Peg Step.

Daily Inspection

1. Inspection Area: Step
 - a) Inspect the Step for condition and security.

100 Hour or Annual Inspection

1. Inspection Area: Step
 - a) Visually inspect all mounting hardware for condition and security.
 - b) Visually inspect step for cracks, corrosion or other damage.
 - c) 82707 Configuration Only: Visually inspect step tube attachment to socket fitting. Step tube must not be loose in socket.

Special Inspections

1. Following a hard landing inspect the Maintenance Peg Step installation in accordance with the 100 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Maintenance Peg Step (82703 Configuration)

Part	Type of Damage	Max. Allowable	Repair
Step	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks	None	N/A
	Bent Lugs	None	N/A

2. Maintenance Peg Step (82707 Configuration)

Part	Type of Damage	Max. Allowable	Repair
Step Tube	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks	None	N/A
	Permanent bend	*Note	None
Fitting	Corrosion	0.030" deep	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks	0.060" deep x 0.5" long	Blend up to 0.060" deep with scotchbrite.
	Cracks	None	N/A
	Elongation of socket hole	None	N/A

*Note: Minor bending of the step tube that does not cause the tube to become loose in the socket is acceptable.

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly (82703 and 82707 configurations)

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Maintenance Peg Step Installation may be applied to the right and/or left side of the helicopter. The 82707 configuration cannot be installed on the same side as the 82703 configuration

25-1 STEP INSTALLATION (82703 CONFIGURATION)

Refer to Figure 2. Beam does not have to be installed on helicopter prior to this installation.

1. Locate Step Assembly 78635-01 / -02 (right/left) on aft Beam 78631-01 by inserting bushings on Step Assembly into holes provided on inboard face of aft Beam. Fasten with two AN4-5A Bolts, AN960-416 Washers, and MS21044N4 Nuts. Torque bolts to 30-40 in-lbs.

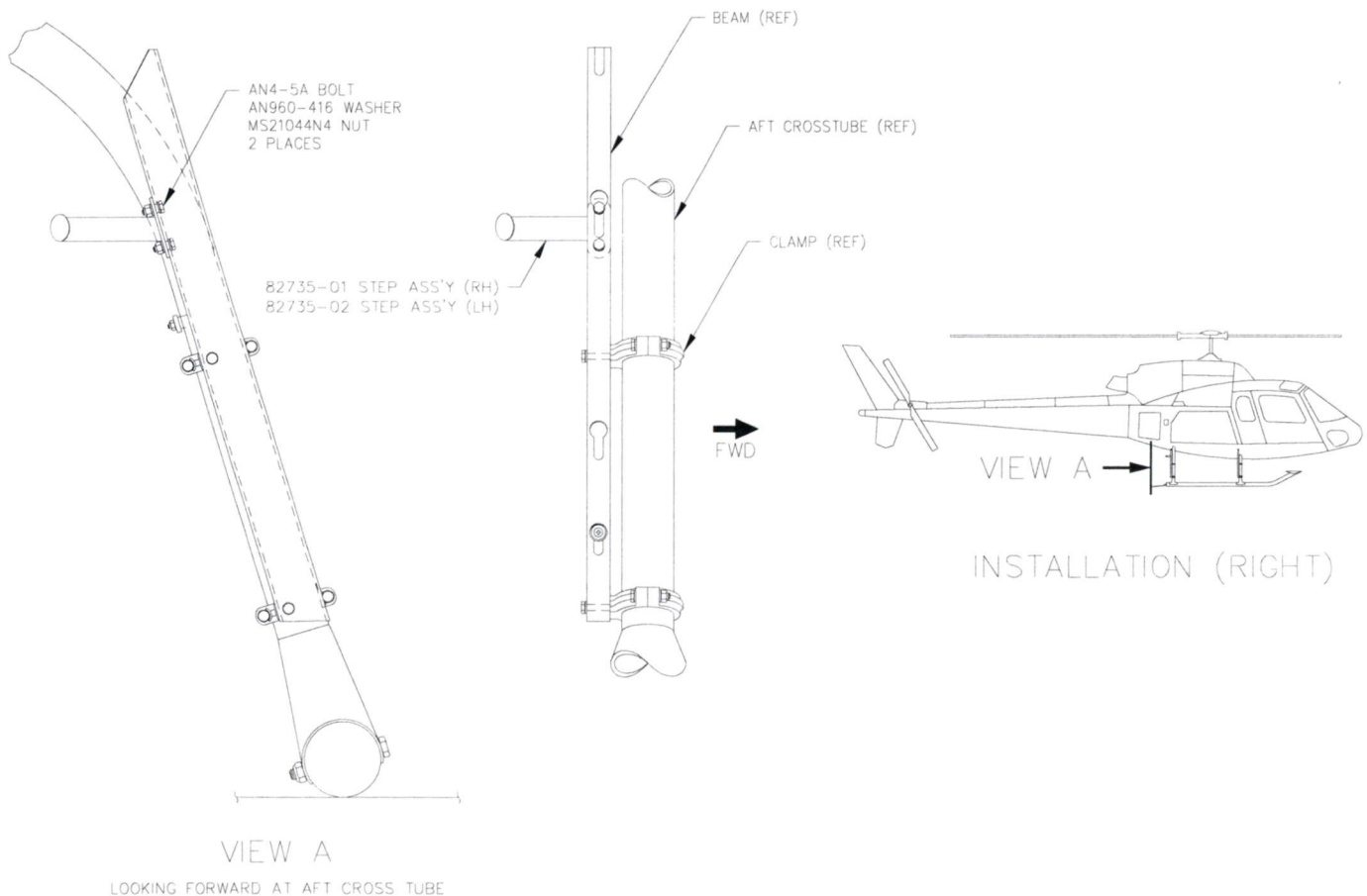


Figure 2 – Maintenance Peg Step Attachment Details

25-2 STEP REMOVAL (82703 CONFIGURATION)

Refer to Figure 2.

1. Remove two AN4-5A Bolts, AN960-416 Washers, and MS21044N4 Nuts attaching Step Assembly to aft Beam. Remove Step Assembly.

25-3 STEP INSTALLATION (82707 CONFIGURATION)

1. Locate Step Assembly 78640-01 on aft cross tube. Fasten with one side with AN4-14A Bolt, AN960-416 Washers, and MS21044N4 Nut; fasten opposite side with FT4F-175H T-Bolt, AN960-416 Washer and MS21044N4 Nut. Rotate step until horizontal, approximately 45 degrees to the cross tube. Torque nuts to 50-70 in-lbs.

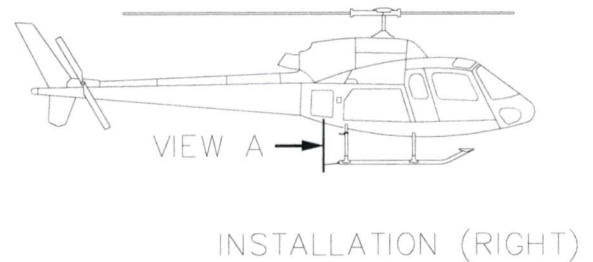
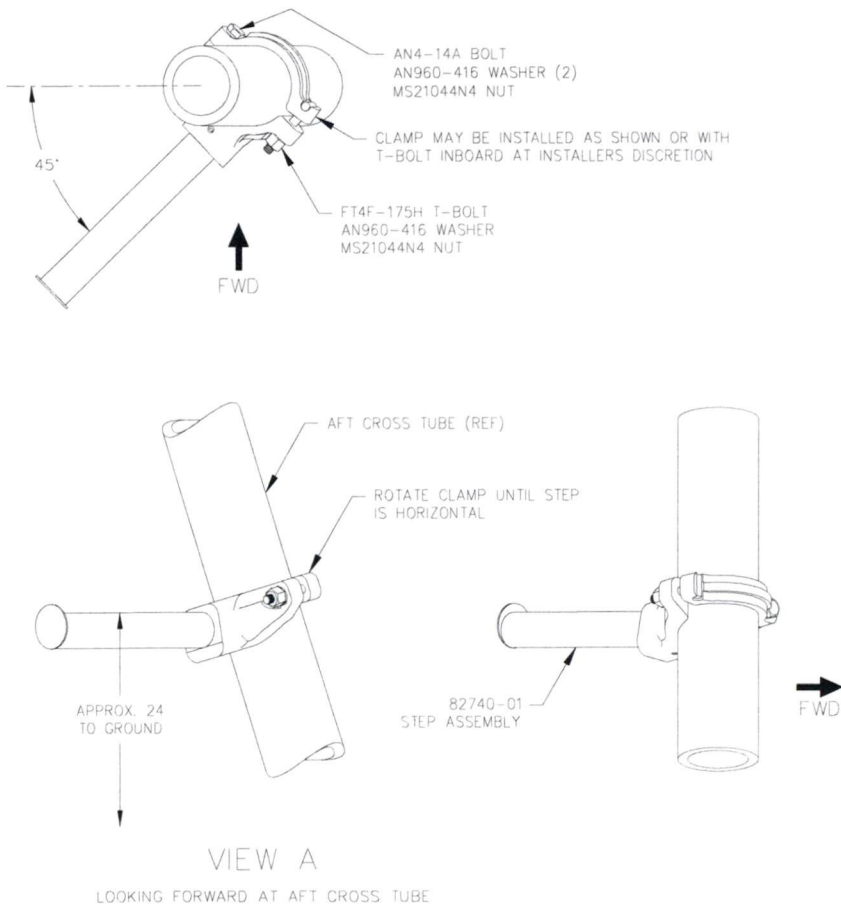


Figure 2 – Maintenance Peg Step Attachment Details

25-4 STEP REMOVAL (82707 CONFIGURATION)

Refer to Figure 2.

1. Remove AN4-14A Bolt, FT4F-175H T-Bolt, AN960-416 Washers, and MS21044N4 Nuts attaching Step Assembly to aft cross tube. Remove Step Assembly.

25-5 WEIGHT AND BALANCE

82703 Configuration

Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82703-01	Maintenance Peg Step Inst'n (Right)	0.4	165.3	66.1	33.9	13.6
82703-02	Maintenance Peg Step Inst'n (Left)	0.4	165.3	66.1	-33.9	-13.6

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	Moment mm-kg
82703-01	Maintenance Peg Step Inst'n (Right)	0.2	4199	763	861	157
82703-02	Maintenance Peg Step Inst'n (Left)	0.2	4199	763	-861	-157

82707 Configuration

Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82707-01	Maintenance Peg Step Inst'n (Right)	1.0	163.8	163.8	32.5	32.5
82707-02	Maintenance Peg Step Inst'n (Left)	1.0	163.8	163.8	-32.5	-32.5

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	Moment mm-kg
82707-01	Maintenance Peg Step Inst'n (Right)	0.45	4160.5	1872.2	825.5	371.5
82707-02	Maintenance Peg Step Inst'n (Left)	0.45	4160.5	1872.2	-825.5	-371.5

25-6 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Maintenance Peg Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.93)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82703, 82707

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.93)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

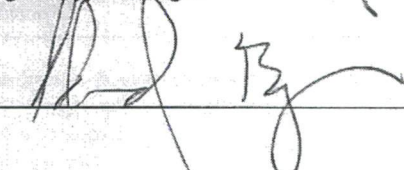
MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4	Supplemental ICA ref: Section 4
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BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.	
Applicants Signature: 	Date: January 15, 2010
Applicants Name: E. Burgoin, P.Eng., DAR 290M	

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.			
Reviewer's Name: _____	Phone # _____	Email: _____	Mail Routing Symbol: _____
Signature: _____	Date: _____	NAPA Number _____	

AERO Design Ltd.

**ENGINEERING REPORT
ER827.01**

**QUICK RELEASE MAINTENANCE STEP INSTALLATION
FIXED CABIN STEP INSTALLATION
PEG STEP INSTALLATION**

Eurocopter AS350 & AS355 Series

Approved: E. Burgoin, P. Eng.

Prepared by: Jeff Clarke

Revision 2

Date: 17 December, 2009

AERO Design Ltd.
Engineering Consultants

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1.0 INTRODUCTION

On the Eurocopter AS350 & AS355 Series a step is required to aid access to the cabin when on high gear. Two different lengths are provided: a short step to accommodate the large Quick Release Cargo Basket installation in accordance with drawing 78401; and a long step that is compatible with medium and short cargo baskets. In the long configuration, the same clamp arrangement is used as in the Cargo Basket installation for attachment to the forward cross tube. In the short configuration, a bracket is mounted to an existing hole for mounting floats.

When the cargo basket mounting provisions are installed, a step installed in the basket mount will aid in access for maintenance of the helicopter when on the ground. In the high configuration, the step can be stowed on the beams under the baskets and carried with the helicopter.

A step located near the aft cross tube is required to access existing step provisions on the cross tube for maintenance activities on the helicopter. A peg step is attached to the aft quick release mounting provision to provide access when a quick release maintenance step is not installed.

An additional peg step configuration is provided for helicopters equipped with the low quick release mounting provisions, or that have no mounting provisions installed. The step assembly consists of a clamp arrangement that attaches to the rear cross tube, with a socket for a step tube.

2.0 REFERENCE

AERO Design Ltd. Drawings 82701, 82702, 82703, 82705, 82706, 82707

MIL-HDBK-5J

3.0 BASIS OF CERTIFICATION

Eurocopter AS350 & AS355 Series, TCDS H-83/H-87:

FAR 27, Amendment 27-20, plus select sections of later Amendments (AS355NP basis of certification).

This installation:

Same as the basis of certification for each model as shown above.

4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

This installation does not impact on any current ADs.

5.0 LOADS

5.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is located external to the cabin. It cannot be reached to be occupied in flight, therefore the maneuvering loads applied are only due to the step weight itself (6.4 lbs).

$$W_{\text{step}} = 6.4 \text{ lbs}$$

Weight of step (maintenance step)

$$n_{\text{man_pos}} = 3.5$$

Limit positive maneuvering load factor (Ref: FAR 27.337)

$$n_{\text{sf}} = 1.5$$

Safety Factor (Ref: FAR 27.303)

$$n_{\text{ult_man_pos}} = n_{\text{man_pos}} \times n_{\text{sf}}$$

$$n_{\text{ult_man_pos}} = 3.5 \times 1.5 = 5.25$$

Ultimate positive maneuvering load factor

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 33.6 \text{ lbs}$$

Ultimate positive maneuvering load

5.2 Fixed Cabin Step

5.2.1 Inertia Loads

$$W_{\text{step}} = 8.0 \text{ lbs}$$

Weight of step (high mounted cabin step)

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 42 \text{ lbs}$$

Ultimate positive maneuvering load

The step is not intended to be used in flight. As such, there is no requirement for the application of maneuvering inertia loads due to a person on the step. However, the step is checked for ultimate inertia load applied by one person to allow for the possibility of use during rappel or similar operations.

$$W_{\text{person}} = 170 \text{ lbs}$$

Weight of person

$$P_{\text{ult_man_pos}} = W_{\text{person}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 892.5 \text{ lbs}$$

Ultimate positive maneuvering load applied to step by 1 person

5.2.2 Aerodynamic Loads

Drag

$$A_f := 10.2 \cdot \text{in}^2$$

Frontal Area of Step

$$V_{ne} := 155 \cdot \text{knots}$$

Never Exceed Speed of AS350/AS355/EC135
(Highest of all models)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 172.2 \cdot \text{knots}$$

Design Dive Speed

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Air Density at Sea Level

$$C_{Do} := 2.0$$

Coefficient of Drag (conservative)

$$P_{\text{drag}} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{Do}$$

$$P_{\text{drag}} = 14.2 \cdot \text{lbf}$$

Limit drag at V_d

$$n_{sf} := 1.5$$

Factor of Safety

$$P_{\text{drag_ult}} := P_{\text{drag}} \cdot n_{sf}$$

$$P_{\text{drag_ult}} = 21.3 \cdot \text{lbf}$$

Ultimate drag at V_d

Lift

$$A_{\text{lift}} := 3.4 \cdot \text{in} \cdot 73.75 \cdot \text{in}$$

$$A_{\text{lift}} = 250.7 \cdot \text{in}^2$$

Planar area of step (largest)

Coefficient of lift for round tubes relative to airflow varies from near 0 at 0°, to 0.4 at about 60°.

$$C_L := 0.4$$

Coefficient of lift (Max. for a round tube, ~60° to air flow)
(ref. Hoerner, Fig. 18)

$$P_{\text{lift}} := C_L \cdot \frac{\rho}{2} \cdot V_d^2 \cdot A_{\text{lift}}$$

$$P_{\text{lift}} = 69.9 \cdot \text{lbf}$$

Limit lift on step at V_d

$$P_{\text{lift_ult}} := P_{\text{lift}} \cdot n_{sf}$$

$$P_{\text{lift_ult}} = 104.8 \cdot \text{lbf}$$

Ultimate lift on step at V_d

5.3 Maintenance Peg Step

The Maintenance Peg Step (82703-01/-02) is located on the inboard side of the aft Quick Release Mounting Provisions. The step weighs less than 1 lb. The inertia and aerodynamic loads are very small.

The stand alone Maintenance Peg Step (82707-01/-02) is located on the inboard/aft side of the aft cross tube. The step installation weighs less than 1 lb. The inertia and aerodynamic loads are very small.

6.0 STRUCTURAL COMPLIANCE

6.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is similar to the Quick Release Step tested in ER800.01, and uses the same attachments. The step was tested to 1800 lbs and was 72" long. This step is not in a position to be used in flight, and is shorter than the step tested which reduces the bending moment. The Mounting Provisions on the AS350 have been tested to carry a cargo basket with 300 lbs of cargo at ultimate maneuvering load factor. The Maintenance Step installation has been considered and is satisfactory for installation.

6.2 Fixed cabin Step

The aerodynamic drag load is very small and by inspection can be carried by the step assembly and its attachments.

The aerodynamic lift generated by the step is applied similar to the down load tested below, only upward. The downward test is sufficient to demonstrate the lift load.

Long Fixed Step

A Long Fixed Step Assembly was fabricated in accordance with drawing 82713. The step was installed on a helicopter in accordance with drawing 82705. The step was loaded with 1000 lbs of lead shot (40 bags @ 25 lbs), evenly distributed over the surface of the step.

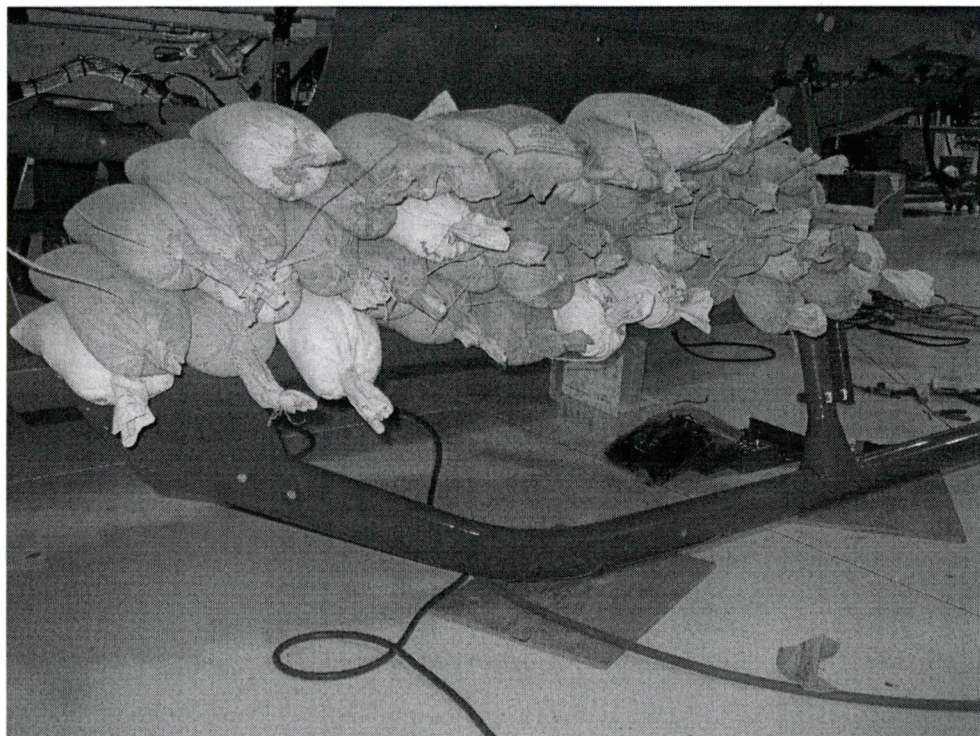


Figure 6.2.1 – Ultimate Maneuvering Load on Long Step Assembly

With the load removed there was no permanent deformation found. The clamp on the aft end did not slip down the cross tube. The long fixed cabin step is satisfactory for installation.

Short Fixed Step

A Short Fixed Assembly was fabricated in accordance with drawing 82714. The step was installed on a scrap helicopter skid tube, mounted to a pair of scrap cross tubes to prevent rotation. The step was loaded with 900 lbs (36 bags @ 25 lbs) of lead shot, evenly distributed over the surface of the step.

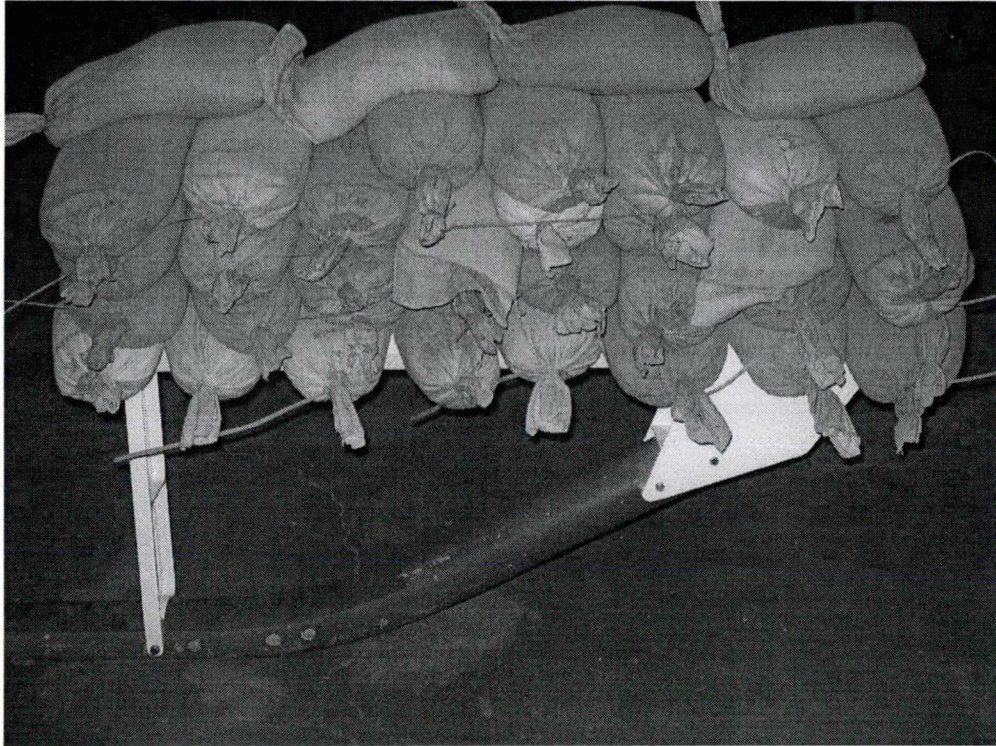


Figure 6.2.2 – Ultimate Maneuvering Load on Short Step Assembly

With the load removed there was no permanent deformation found. The short fixed cabin step is satisfactory for installation.

6.3 Maintenance Peg Step

The Maintenance Peg Step was installed on a High Mounted Quick Release Beam and the beam installed on a cross tube. The step was stood on and jumped on at the end of the step tube. There was no permanent deformation or failure. The step is satisfactory for installation.

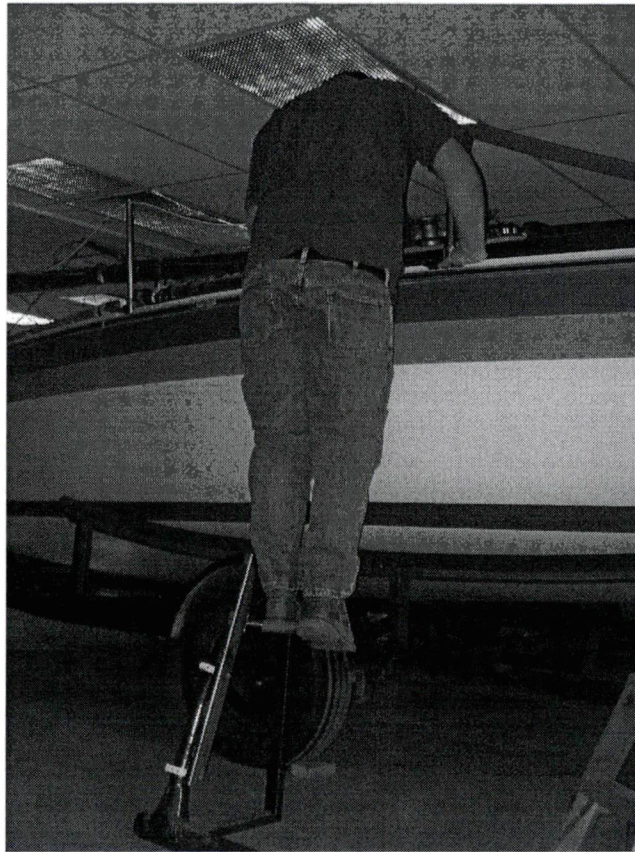


Figure 6.3.1 – Peg Step Load Test

The stand alone Maintenance Peg Step was installed on a scrap aft cross tube. The step was stood on and jumped on. There was no permanent deformation or failure. An additional longer tube was placed over the step tube to apply greater bending. It was found that 2-3 times the bending moment that is applied by one person jumping on the tube was required to permanently deform the tube enough to cause it to be pulled from the socket. The socket remained round, indicating all deformation was in the step tube. A new tube was pressed in place to determine that the fit was still sufficient.

7.0 COMPLIANCE WITH 27.251 AND 27.629

The frontal and planar area of the step is significantly smaller than the area of the cargo basket which uses the same mounting provisions (for quick release maintenance step). The step section is a closed section so it is torsionally rigid and will not allow flexing between the attachments. The conclusion that can be drawn from these properties is that the aerodynamic loading or turbulence shedding from the step will be significantly less than from the basket, and are expected to be similar to the basic unmodified helicopter.

The effects of vibration (27.251) and flutter (27.629) have been considered over the flight regime of the helicopter, and there is no effect.

DOCUMENT CONTROL LIST

DOCUMENT NO.	DOCUMENT CONTENT	REVISION
INSTALLATION DOCUMENTS		
82701	Quick Release Maintenance Step Installation (High)	0
82702	Quick Release Maintenance Step Installation (Low)	0
82703	Quick Release Maintenance Step Installation (Mid)	0
ICA827.91	Instructions for Continued Airworthiness	2
FMS827.90	Flight Manual Supplement	1
FABRICATION DOCUMENTS		
DCL827-11	Document Control List for Step Assembly	1
ENGINEERING DOCUMENTS		
<div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="width: 30%;"> <p>APPROVAL: E. BURGOIN DAR 250M</p> <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <p style="text-align: center;">APPROVED</p> <p>By <i>[Signature]</i></p> <p>App'l No. <u>5409-38</u></p> <p>App'l Date <u>07 AUG 2009</u></p> <p>Issue No. <u>1</u></p> <p>Issue Date <u>07 AUG 2009</u></p> <p>THIS DCL REVISION APPROVED 21 JAN 2010</p> </div> </div> <div style="width: 40%;"> <p>ORIGINAL DATE: 31 October, 2008</p> <p>REVISION DATE: 15 January 2010</p> </div> <div style="width: 30%; text-align: center;"> <p>AERO DESIGN LTD.</p> <p>2013 - 39th Ave NE, Calgary, Alberta, T2E 6R7</p> <p>Ph. (403) 250-8027</p> <p>Fax. (403) 250-8333</p> <p>www.aerodesign.ca</p> </div> </div>		
SHEET 1 OF 1		Eurocopter AS350 & AS355 Series Quick Release Maintenance Step Installation
DCL827-1		Rev. 3

FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE827-1 Initial Issue Date: 7 August, 2009 Revision: 1 Revision Date: 15 January 2010 Approval No.: SH09-38 Delegation No.: 290M Delegate Name: E. Burgoin Company: AERO Design Ltd.
Aircraft Mfr: Eurocopter Aircraft Model: AS350 & AS355 Series Registration: ALL ELIGIBLE	Model / Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	

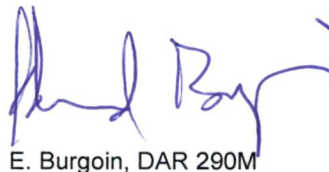
LIST OF APPROVED REPORTS AND DATA

Document Number	Revision	Document Title	Compliance Status
DCL827-1 82708	3 0	Document Control List and all documents referred to therein Quick Release Maintenance Step Installation (Mid)	As per Compliance Program, CP827, Revision 0
DATA APPROVED BY TRANSPORT CANADA			
ICA827.91 FMS827.90	2 1	Instructions for Continued Airworthiness Flight Manual Supplement	

CERTIFICATION

UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIREMENTS.

I THEREFORE ☒ RECOMMEND FOR APPROVAL OF THESE DATA (ICA827.91 and FMS827.90)
☒ APPROVE THESE DATA


 E. Burgoin, DAR 290M

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.91)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82701, 82702, 82708

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.91)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

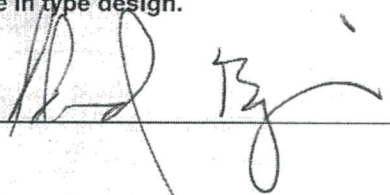
BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

<p>A527.4 AWL - Separate Section 1</p> <p>The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."</p>	<p>ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4</p>	<p>Supplemental ICA ref: Chapter 4</p>
--	--	--

BLOCK 4 – Applicant Statement of Compliance

<p>The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.</p>	
<p>Applicants Signature: </p>	<p>Date: <u>January 15, 2010</u></p>
<p>Applicants Name: <u>E. Burgoin, P.Eng, DAR 290M</u></p>	

BLOCK 5 – Minister's Statement of Acceptability

<p>The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.</p>			
<p>Reviewer's Name: _____</p>	<p>Phone # _____</p>	<p>Email: _____</p>	<p>Mail Routing Symbol: _____</p>
<p>Signature: _____</p>	<p>Date: _____</p>	<p>NAPA Number _____</p>	

AS350 & AS355 SERIES HELICOPTERS

FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE MAINTENANCE STEP

**QUICK RELEASE MAINTENANCE STEP MODELS:
82701, 82702, 82708**

Supplemental Type Certificate No. SH09-38

Sections I, II, III, IV, and V of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section II, Limitations, is mandatory. Section VI and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Eurocopter AS350 and AS355 Series Helicopters when fitted with the Quick Release Maintenance Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement refer to the Approved Flight Manual and other approved Flight Manual Supplements.



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I	General	3
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III	Emergency ProCedures	3
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VI	Installation / removal instructions	4
VII	Weight and Balance	5

Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	By
0	4 Aug 2009	None		
1	5 Jan 2010	1, 2, 4-8		

AERO DESIGN LTD.

FMS827.90

I GENERAL

No change.

II LIMITATIONS

No change.

III EMERGENCY PROCEDURES

No change.

IV NORMAL PROCEDURES

No change.

V PERFORMANCE

No change.

VI INSTALLATION / REMOVAL INSTRUCTIONS

The beams are installed in accordance with Supplemental Type Certificate SH08-16. The maintenance step is installed in accordance with drawing 82701, 82702, or 82708 as applicable. Removal of the step leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of step and which weight and balance amendment is in effect is required when step is installed or removed.

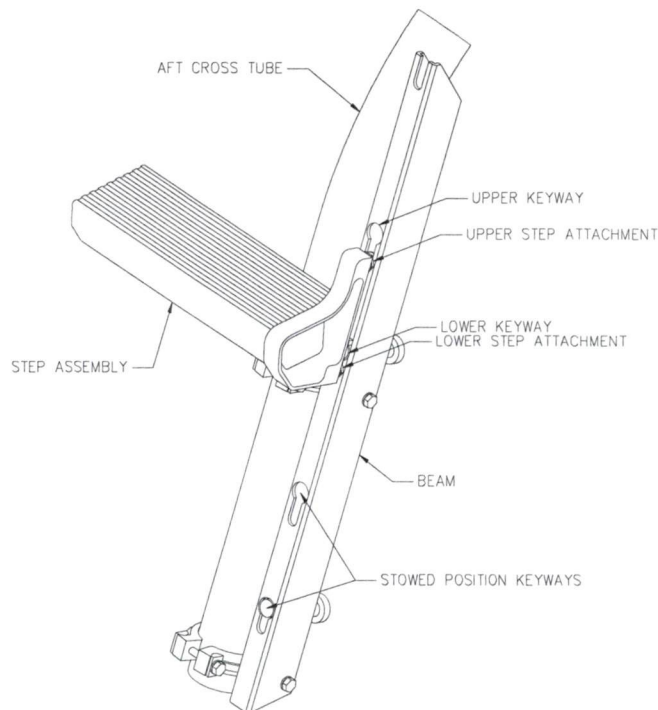


Figure 1 – Step Attachment Features

1. Installation - Refer to Figure 1.
 - a) Set step upper attachment into upper keyway in forward and aft beams.
 - b) Lift step until lower attachment fitting hits stop.
 - c) Push fitting into keyway and slide step down until locked.

AERO DESIGN LTD.

FMS827.90

2. Removal - Refer to Figure 1.

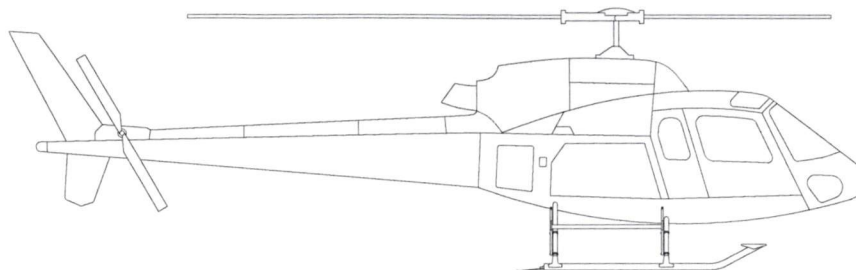
- a) Pull knob at bottom end of forward beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
- b) Pull knob at bottom end of aft beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
- c) Lift step until upper attachments are out of keyways on both beams and remove step from helicopter

VII WEIGHT AND BALANCE

This section contains weight and balance information for maintenance step models 82701, 82702, 82708. Refer to the weight and balance information applicable to model and configuration installed.

Weight and balance is for Maintenance Step only. Mounting beams are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

1. **MAINTENANCE STEP 82701.** The following weight and balance is for the quick release maintenance step installed in accordance with drawing 82701. Upper and lower (stowed) positions are provided, either position is approved for flight.



Maintenance Step: Configuration 82701-01 (High Mounting Provisions)

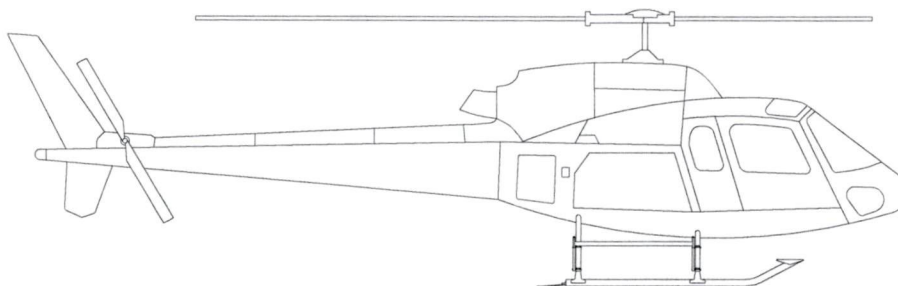
Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82710-01	Step (RH)	6.4	135.7	868.5	38.9	249.0
82710-01	Step (RH, stowed)	6.4	135.7	868.5	41.7	266.9
82710-01	Step (LH)	6.4	135.7	868.5	-38.9	-249.0
82710-01	Step (LH, stowed)	6.4	135.7	868.5	-41.7	-266.9

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
82710-01	Step (RH)	2.9	3446.8	9979.8	988.0	2865.2
82710-01	Step (RH, stowed)	2.9	3446.8	9979.8	1059.0	3071.1
82710-01	Step (LH)	2.9	3446.8	9979.8	-988.0	-2865.2
82710-01	Step (LH, stowed)	2.9	3446.8	9979.8	-1059.0	-3071.1

2. **MAINTENANCE STEP 82702.** The following weight and balance is for the maintenance step installed in accordance with drawing 82702.



Maintenance Step: Configuration 82702-01 (Low Mounting Provisions)

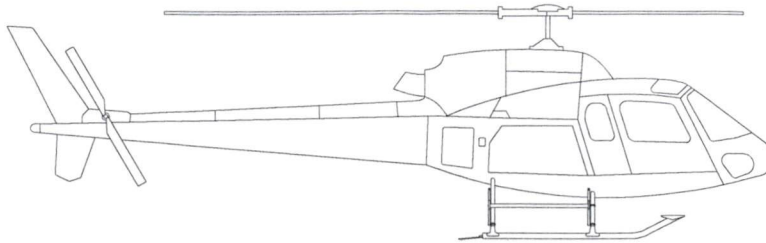
Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82710-01	Step (RH)	6.4	135.7	868.5	39.1	250.2
82710-01	Step (LH)	6.4	135.7	868.5	-39.1	-250.2

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
82710-01	Step (RH)	2.9	3446.8	9979.8	993.1	2880.1
82710-01	Step (LH)	2.9	3446.8	9979.8	-993.1	-2880.1

3. **MAINTENANCE STEP 82708.** The following weight and balance is for the maintenance step installed in accordance with drawing 82708.



Maintenance Step: Configuration 82708-01 (Mid Mounting Provisions)

Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82710-01	Step (RH)	6.4	135.7	868.5	39.6	253.4
82710-01	Step (LH)	6.4	135.7	868.5	-39.6	-253.4

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
82710-01	Step (RH)	2.9	3446.8	9979.8	1005.8	2916.9
82710-01	Step (LH)	2.9	3446.8	9979.8	-1005.8	-2916.9

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.91

EUROCOPTER AS350 & AS355 SERIES QUICK RELEASE MAINTENANCE STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Maintenance Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-11, Revision 1, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 2
Date: 05 January, 2010

AERO Design Ltd.
Engineering Consultants

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7
Phone: (403) 250-8027
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E-Mail: info@aerodesign.ca

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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0			Original Issue
1	23 July 2009		
2	05 January 2010		

LIST OF EFFECTIVE PAGES

List of Revisions	Revision 0 (Original Issue)	20 October, 2008
	Revision 1	23 July, 2009
	Revision 2	05 January 2010

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	2
Revision Record/List of Effective Pages	2	2
Table of Contents	3	0
00-00-00	4-5	0
04-00-00	6	1
05-00-00	7-9	2
25-50-00	10-12	2

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CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Maintenance Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness

LH - Left Hand

RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Maintenance Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

High Mounted Quick Release Provisions:

The Quick Release Maintenance Step must be installed in the lower (stowed) position prior to installation of the AERO Design Ltd. Cargo Baskets in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION

The Quick Release Maintenance Step installation consists of a step assembly which is attached to quick release mounting provisions installed on the helicopter. These mounting provisions are capable of mounting various equipment including cargo baskets.

The step itself consists of an aluminum extrusion attached to brackets on the ends with fittings that lock into the quick release mechanism.

Two positions are provided: upper for use in maintenance activities and lower for stowing under a cargo basket.

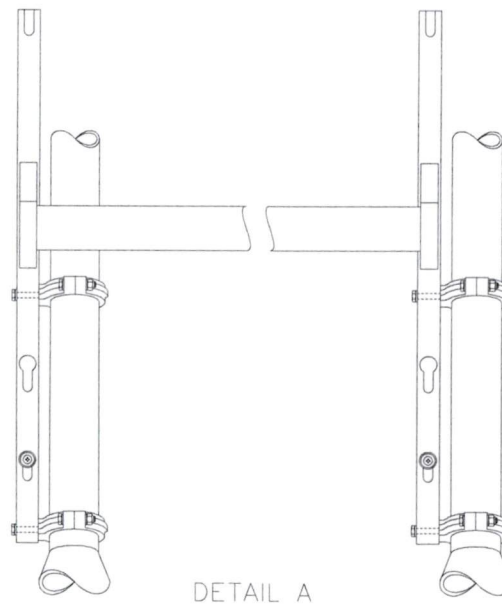
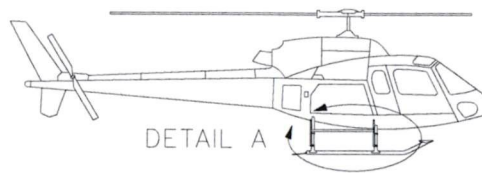


Figure 0-1 – AS350 Quick Release Maintenance Step Installation
(High Installation shown, Low Installation similar)

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Maintenance Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

Refer to ICA764.90 for inspection requirements for the Quick Release Mounting Provisions not included below.

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Maintenance Step.

Daily Inspection

1. Inspection Area: Step

- a) Inspect the step attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.

100 Hour or Annual Inspection

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for inspection of mounting provisions.

1. Inspection Area: Step

- a) Visually inspect welds attaching end brackets to step extrusion for cracks, corrosion or other damage.
- b) Visually inspect step for damage.
- c) Visually inspect lugs attaching the step to the beams for security and damage.

Special Inspections

1. Following a hard landing inspect the Quick Release Maintenance Step installation in accordance with the 100 hour or annual inspection listed above.
2. Any joints using a helical thread insert (Helicoil) shall be inspected on assembly in accordance with the procedure for checking self locking nuts and screws specified in the Eurocopter Standard Practices Manual, Section 20.02.05.601

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for further limits and repair instructions.

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Step Assembly

Part	Type of Damage	Max. Allowable	Repair
Step End Bracket	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Bent Lugs	None	N/A
Centre Step Section	Corrosion	2" x 2" x 0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 1" long	Blend up to 0.010" deep with scotchbrite.
	Cracks / Dents	None	N/A
	Permanent Deflection of Step	0.25" max at middle of step	None

2. Steel Beams

Part	Type of Damage	Max. Allowable	Repair
Steel Beam	Corrosion	0.030" deep	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (Outboard face)	0.030" deep x 0.125" wide	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (all other sides)	0.060" deep x 0.125" wide	Blend up to 0.060" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Elongation of Keyway	See figure 5-1 thru 5-3	None
	Widening of slots	27/64" (0.422) diameter maximum (check with a 27/64" drill)	None



Figure 5-1 – Critical Keyway dimensions (Low Beams)

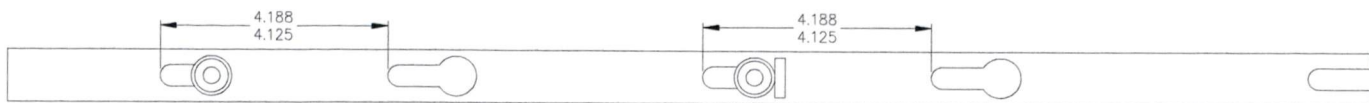


Figure 5-2 – Critical Keyway dimensions (High Beams)

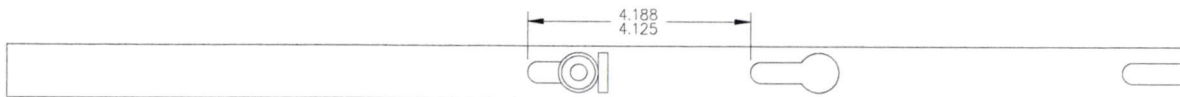


Figure 5-3 – Critical Keyway dimensions (Mid Beams)

3. Step Welds

Cracks up to 0.25" long may be repaired as follows:

- Clean area of paint.
- Grind away weld in area of crack.
- T.I.G. weld per MIL-STD-2219 Class "C" using ER4043 filler rod. Do not grind flush.
- Touch up paint as noted in section 5-3.

4. Helical Thread Inserts

Helical thread inserts (Helicoils) found to be damaged shall be repaired in accordance with the Eurocopter Standard Practices Manual, Section 20.03.04.404.

Part numbers:

1/4-28 insert: 3591-4CN375

3/8-24 insert: 3591-6CN563

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Quick Release Maintenance Step Installation may be applied to the right and/or left side of the helicopter. Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for installation, inspection, repair and removal instructions for the mounting provisions.

25-1 STEP INSTALLATION

Refer to Figure 4.

1. Set upper attachment into upper keyway in forward and aft beams.
2. Lift step until lower attachment fitting hits stop. Push fitting into keyway and slide step down until locked.

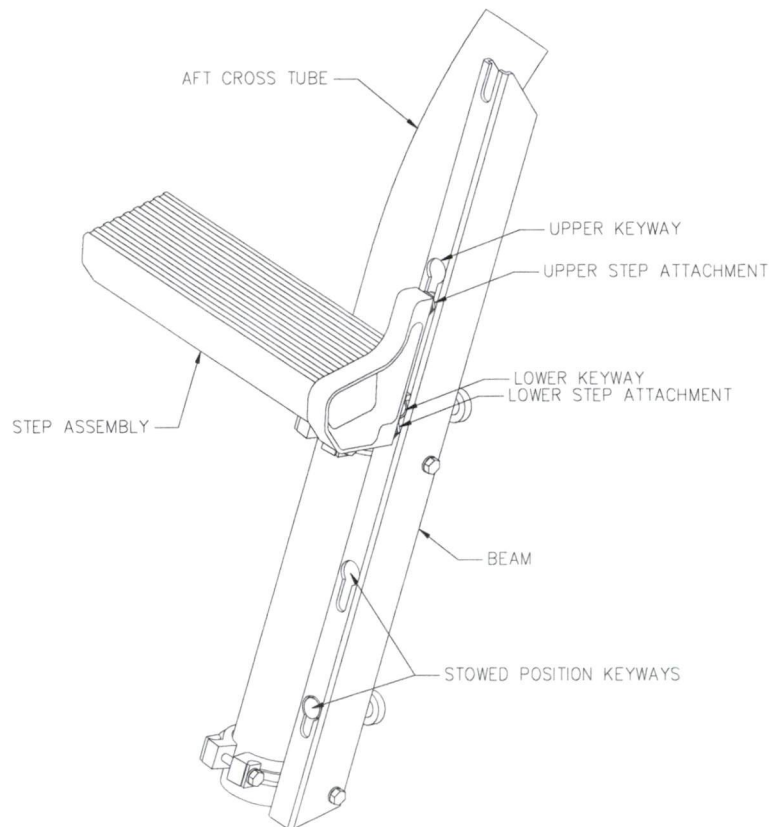


Figure 25-1 – Step Attachment
(High Installation shown, Low and Mid Installation similar)

25-2 STEP REMOVAL

Refer to Figure 4.

1. Pull knob at bottom end of forward beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
2. Pull knob at bottom end of aft beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.

3. Lift step until upper attachments are out of keyways on both beams and remove from helicopter.

25-3 WEIGHT AND BALANCE

Difference weight and balance configurations are required for the pilot. The first is the installation of Provisions only. The second is Provisions and Step in the upper position. The third is Provisions and step in the lower position (High Configuration only).

Standard						
P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
<i>Upper Position (High config.)</i>						
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	38.9	249.0
82701-01	Step Installation	16.4	135.6	2223.4	37.6	617.3
<i>Lower Position (Stowed, High config.)</i>						
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	41.7	266.9
82701-01	Step Installation	16.4	135.6	2223.4	38.7	635.2
<i>Low Configuration</i>						
78601-01	Low Provisions Installation	7.0	135.4	947.9	37.6	263.5
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	39.1	250.2
82702-01	Step Installation	13.4	135.6	1816.4	38.3	513.7
<i>Mid Configuration</i>						
78601-03	Mid Provisions Installation	8.0	135.4	1083.9	37.3	298.2
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	39.6	253.4
82708-01	Step Installation	14.4	135.6	1952.4	38.3	551.6

P/N	Description	Metric				
		Weight	Longitudinal		Lateral	
	<i>Upper Position (High config.)</i>	kg	arm mm	moment mm-kg	arm mm	moment mm-kg
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	988.0	2865.2
82701-01	Step Installation	7.4	3441.3	25465.7	956.1	7075.0
<i>Lower Position (Stowed, High config.)</i>						
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	1059.0	3071.1
82701-01	Step Installation	7.4	3441.3	25465.7	983.9	7280.9
<i>Low Configuration</i>						
78601-01	Low Provisions Installation	3.2	3439.6	11006.7	955.0	3056.1
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	993.1	2880.1
82702-01	Step Installation	6.1	3440.4	20986.5	973.1	5936.2
<i>Mid Configuration</i>						
78601-03	Mid Provisions Installation	3.6	3441.4	12457.7	946.9	3427.7
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	1005.8	2916.9
82708-01	Step Installation	6.5	3444.1	22437.5	976.1	6344.6

Note: Lateral arms are given for right side installation. For installation on left side, lateral arms are negative.

25-4 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 529

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Cargo Basket on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 764.90)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 76401, 77601, 78401, 78601

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA764.90)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 thru 25-4
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-5
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-6
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

BLOCK 3

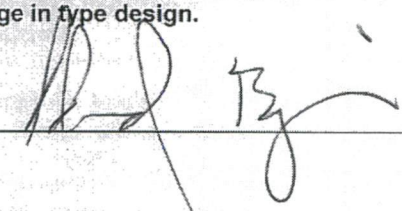
Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4	Supplemental ICA ref: Chapter 4
---	--	---------------------------------

BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature:  Date: January 15, 2010

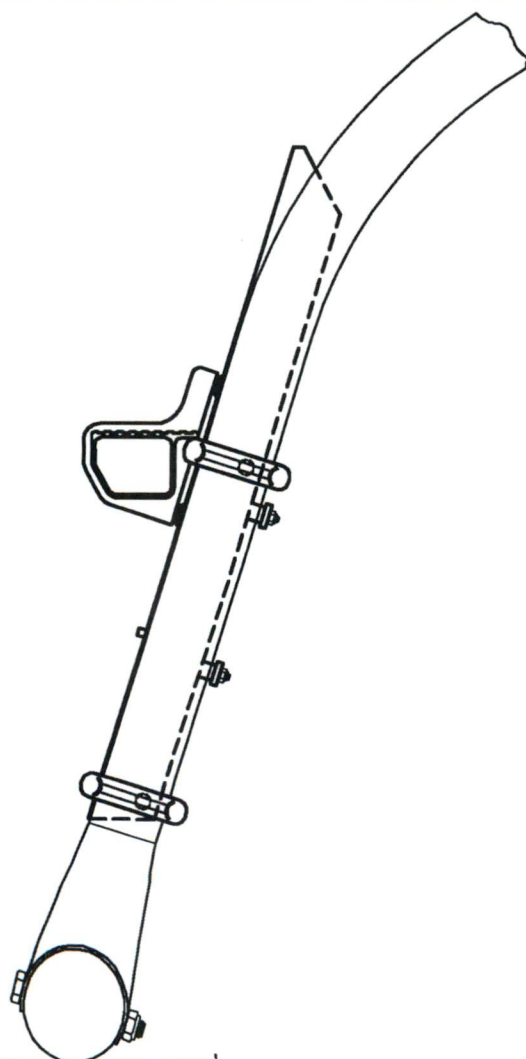
Applicants Name: E. Burgoin, P.Eng, DAR 290M

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

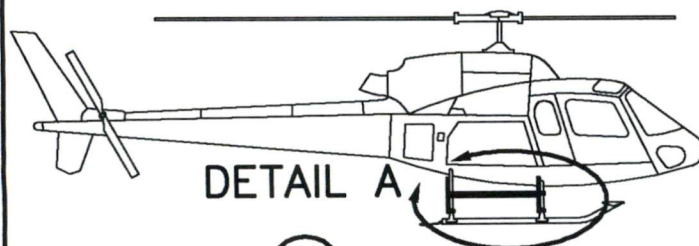
Reviewer's Name: _____ Phone # _____ Email: _____ Mail Routing Symbol: _____

Signature: _____ Date: _____ NAPA Number _____



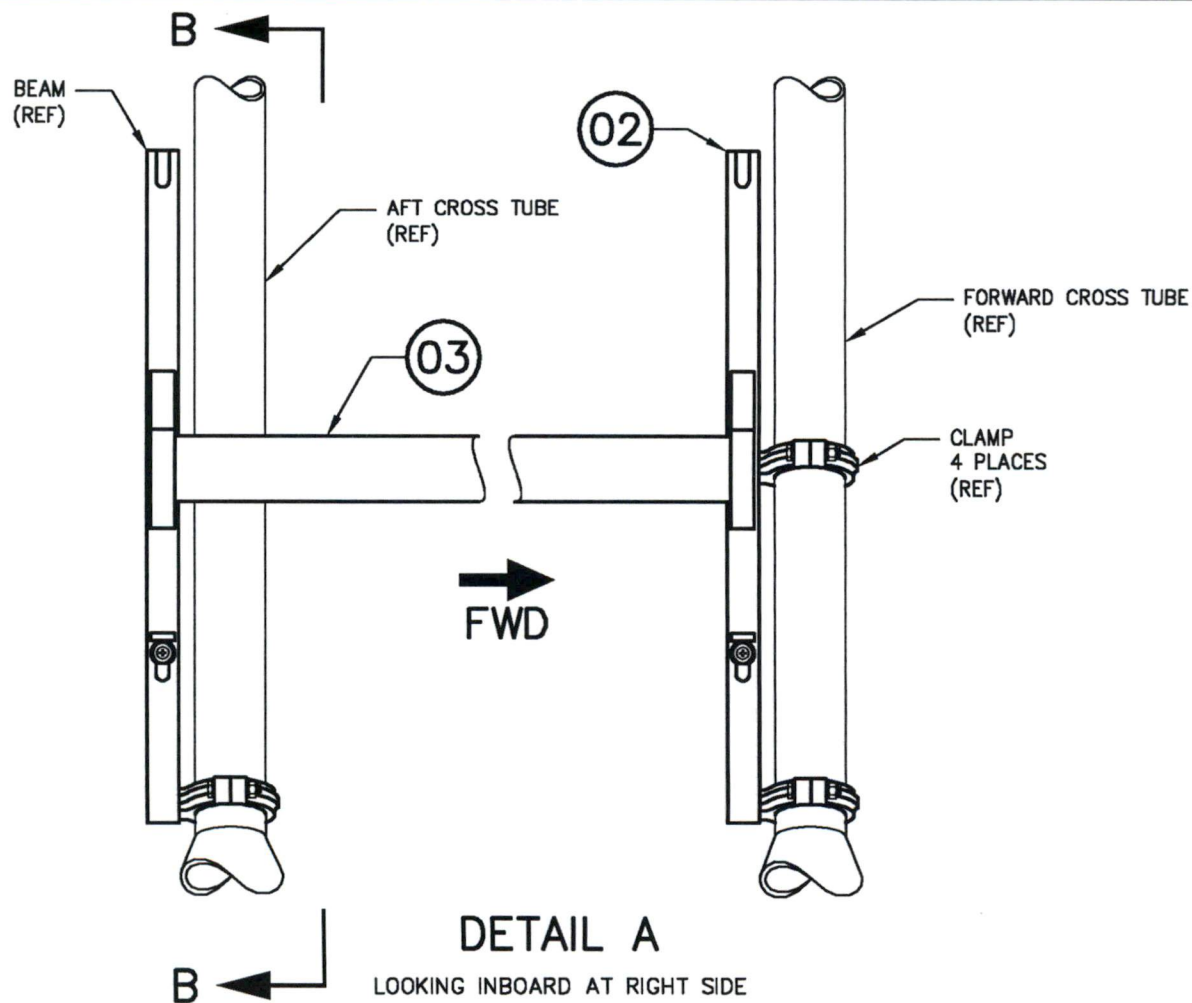
VIEW B-B

LOOKING AFT AT AFT CROSS TUBE



DETAIL A

01 INSTALLATION
NOT TO SCALE



DETAIL A

LOOKING INBOARD AT RIGHT SIDE

APPROVALS	DATE	AERO DESIGN LTD.			
DRAWN: JEFF CLARKE	05 JAN 2010	CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M			
CHECKED: E. BURGOIN		2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7			
		tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca			
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:		EUROCOPTER AS350 & AS355 SERIES MAINTENANCE STEP INSTALLATION MID INSTALLATION			
DECIMALS		DWG. SIZE		DWG. NO.	REV.
X.XXX ±0.010		NOT TO SCALE		82708	0
X.XX ±0.03		SHEET 1 OF 2			
X.X ±0.1		A4			

--- NOTICE ---
 THIS DRAWING CONTAINS INFORMATION AND DATA WHICH IS PROPRIETARY TO AERO DESIGN LTD. THIS DRAWING, OR ANY PORTION THEREOF, MAY NOT BE REPRODUCED, COPIED, OR DUPLICATED IN ANY MANNER, NOR USED FOR MANUFACTURING WITHOUT THE WRITTEN CONSENT OF AERO DESIGN LTD. BY ACCEPTING THIS DRAWING FOR REFERENCE, THE RECIPIENT AGREES TO HOLD AERO DESIGN LTD. HARMLESS FROM THE USE, OR MISUSE, OF THIS DRAWING OR THE INFORMATION CONTAINED THEREON.

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	ORIGINAL ISSUE - RESIZED TO LETTER	BJC	22/07/09

NOTES

1. INSTALLATION OF THE MID MOUNTED ATTACHMENT PROVISIONS IN ACCORDANCE WITH CANADIAN STC SH08-16 IS A MANDATORY PRE-REQUISITE TO THIS INSTALLATION. INSTALLATION ON THE RIGHT AND/OR LEFT SIDE IS APPROVED. WEIGHT AND BALANCE IS SHOWN FOR RIGHT SIDE, LEFT LATERAL ARMS ARE NEGATIVE.

WEIGHT AND BALANCE - METRIC

ITEM	DESCRIPTION	WEIGHT (KG)	LONGITUDINAL		LATERAL	
			ARM (MM)	MOMENT (MM-KG)	ARM (MM)	MOMENT (MM-KG)
03	STEP ASSEMBLY	2.9	3447	9996	1006	2917
02	PROVISIONS INSTALLATION	3.6	3441	12458	947	3427
01	MAINTENANCE STEP INSTALLATION	6.5	3444	22454	976	6344

WEIGHT AND BALANCE - STANDARD

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
03	STEP ASSEMBLY	6.4	135.7	868.5	39.6	253.4
02	PROVISIONS INSTALLATION	8.0	135.5	1083.9	37.3	298.2
01	MAINTENANCE STEP INSTALLATION	14.4	135.6	1952.4	38.3	551.6

APPROVALS	DATE
DRAWN: JEFF CLARKE	05 JAN 2010
CHECKED: E. BURGOIN	

UNLESS OTHERWISE SPECIFIED
 DIMENSIONS ARE IN INCHES.

TOLERANCES ON:

DECIMALS ANGLES
 X.XXX ±0.010 ±1/2"
 X.XX ±0.03
 X.X ±0.1

AERO DESIGN LTD.

CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M
 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7
 tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca

EUROCOPTER AS350 & AS355 SERIES MAINTENANCE STEP INSTALLATION MID INSTALLATION

1	82710-01	03	STEP ASSEMBLY
REF	78601-03	02	MID MOUNTED PROVISIONS INST'N
	82708-01	01	MAINTENANCE STEP INSTALLATION
01	PART NO.	ITEM	DESCRIPTION
QTY	LIST OF MATERIALS		

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 2 OF 2	A4	82708	0



Transport
Canada

Transports
Canada

Prairie and Northern Region - Aircraft Certification
800-1601 Airport Rd NE
Calgary, Alberta
T2E 6Z8

Your file Votre référence

Our file Notre référence

September 24, 2009

C-09-0879

Federal Aviation Administration
New York Aircraft Certification Office
1600 Stewart Ave, Suite 410
Westbury, NY 11590

Attn: Mr. Ray Reinhardt

Subject: Application for FAA Supplemental Type Certificate for Installation of Maintenance, Peg and Fixed Cabin Steps on Eurocopter AS350 and AS355 series rotorcraft

We have received an application from a Canadian resident, AERO Design Ltd., for the issue of a Canadian Supplemental Type Certificate (STC) and the corresponding FAA STC to cover installation of the subject modification on the Bell Medium series rotorcraft.

We have reviewed the applicant's submission and hereby certify that the design change complies with the basis of certification specified in Canadian Type Certificates, H-83 and H-87. We have therefore issued STC SH09-38, Issue 1, dated August 7, 2009. We also confirm that compliance is demonstrated with corresponding FAA Type Certificates H9EU and H11EU unless the FAA applies additional technical considerations.

Please consider this to be a formal application for an FAA STC under the provisions of the Canada-U.S. BASA. It is also requested that the FAA certificate include the phrase "... or later approved revision" as indicated on SH09-38.

In support of this application, the following are enclosed:

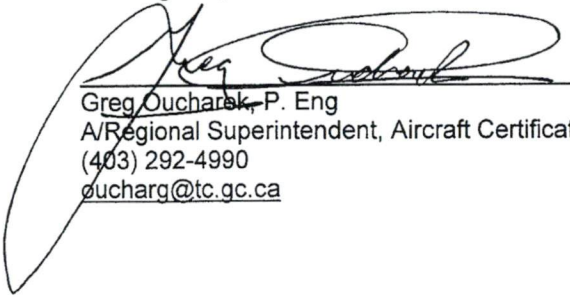
FAA STC Application Form	8110.12	
Modification Approval Request Application Form	MOD827-3	Rev. 0
Supplemental Type Certificate (copy)	SH09-38	Issue 1
Compliance Program	CP827	Rev. 0
MSI 53 ICA Compliance Checksheets		
Document Control List	DCL827-1	Rev. 2
Quick Release Maintenance Step Installation (High)	82701	Rev. 0
Quick Release Maintenance Step Installation (Low)	82702	Rev. 0
Instructions for Continued Airworthiness	ICA827.91	Rev. 1
Flight Manual Supplement	FMS827.90	Rev. 0
Document Control List	DCL827-11	Rev. 1
Step Assembly	82710	Rev. 0
Step End Fabrication	82720	Rev. 0
Document Control List	DCL827-2	Rev. 1
Maintenance Peg Step Installation	82703	Rev. 0

Instructions for Continued Airworthiness Step Assembly	ICA827.93 82735	Rev. 0 Rev. 0
Document Control List	DCL827-3	Rev. 3
Long Cabin Step Installation	82705	Rev. 0
Short Cabin Step Installation	82706	Rev. 0
Instructions for Continued Airworthiness	ICA827.92	Rev. 1
Document Control List	DCL827-13	Rev. 2
Long Cabin Step Assembly	82713	Rev. 0
Short Cabin Step Assembly	82714	Rev. 0
Bracket Fabrication	82721	Rev. 1
Cabin Step Parts Fabrication	82731	Rev. 0
Short Cabin Step Parts Fabrication	82732	Rev. 0
Engineering Report	ER827.01	Rev. 1

Additionally, a CD-R has been provided that contains electronic copies of the data listed above.

If you have any questions or require additional information, please contact the undersigned.

Best regards,



Greg Oucharsk, P. Eng
A/Regional Superintendent, Aircraft Certification
(403) 292-4990
oucharg@tc.gc.ca

AERO DESIGN LTD.

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

Tel: 403-250-8027
Fax: 403-250-8333
www.aerodesign.ca

12 August, 2009

Transport Canada
Aircraft Certification Division
800-1601 Airport Road
Calgary, Alberta
T2E 6Z8

Attn: Greg Oucharek

Your File :
Our File : 827

Re: FAA STC Application for Eurocopter AS350/AS355 Steps

Greg,

Please forward the attached documentation to the appropriate office of the FAA:

FAA STC Application Form	8110.12	
Modification Approval Request Application Form	MOD827-3	Rev. 0
Supplemental Type Certificate (copy)	SH09-38	Issue 1
Compliance Program	CP827	Rev. 0
Document Control List	DCL827-1	Rev. 2
Quick Release Maintenance Step Installation (High)	82701	Rev. 0
Quick Release Maintenance Step Installation (Low)	82702	Rev. 0
Instructions for Continued Airworthiness	ICA827.91	Rev. 1
Flight Manual Supplement	FMS827.90	Rev. 0
Document Control List	DCL827-11	Rev. 1
Step Assembly	82710	Rev. 0
Step End Fabrication	82720	Rev. 0
Document Control List	DCL827-2	Rev. 1
Maintenance Peg Step Installation	82703	Rev. 0
Instructions for Continued Airworthiness	ICA827.93	Rev. 0
Step Assembly	82735	Rev. 0
Document Control List	DCL827-3	Rev. 3
Long Cabin Step Installation	82705	Rev. 0
Short Cabin Step Installation	82706	Rev. 0
Instructions for Continued Airworthiness	ICA827.92	Rev. 1
Document Control List	DCL827-13	Rev. 2
Long Cabin Step Assembly	82713	Rev. 0
Short Cabin Step Assembly	82714	Rev. 0
Bracket Fabrication	82721	Rev. 1
Cabin Step Parts Fabrication	82731	Rev. 0
Short Cabin Step Parts Fabrication	82732	Rev. 0
Engineering Report	ER827.01	Rev. 1

AERO DESIGN LTD.

2013 – 39 Avenue N.E., Calgary, Alberta, T2E 6R7

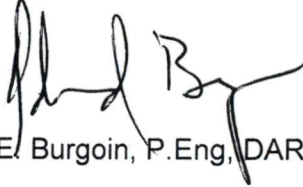
Tel: 403-250-8027

Fax: 403-250-8333

www.aerodesign.ca


Also included is a CD with copies of the documents listed above.

Regards,

A handwritten signature in black ink, appearing to read 'El Burgoin', written over the printed name.

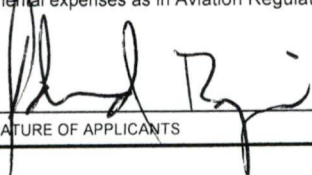
El Burgoin, P.Eng, DAR 290M

Encl.

DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION		FORM APPROVED O.M.B. No. 04-R0078
APPLICATION FOR TYPE CERTIFICATE, PRODUCTION CERTIFICATE, OR SUPPLEMENTAL TYPE CERTIFICATE		
1. Name and address of applicant AERO Design Ltd. 2013 39 th Avenue NE Calgary, Alberta, Canada T2E 6R7	2. Application made for - <input type="checkbox"/> Type Certificate <input type="checkbox"/> Production Certificate <input checked="" type="checkbox"/> Supplemental Type Certificate	3. Product involved <input checked="" type="checkbox"/> Aircraft <input type="checkbox"/> Engine <input type="checkbox"/> Propeller
4. TYPE CERTIFICATE (Complete item 4a below)		
a. Model designation(s) (All models listed are to be completely described in the required technical data, including drawings representing the design, material, specifications, construction, and performance of the aircraft, aircraft engine, propeller which is the subject of this application.)		
5. PRODUCTION CERTIFICATE (Complete items 5a-c below. Submit with this form, in manual form, one copy of quality control data or changes thereto covering new products, as required by applicable FAR.)		
a. Factory address (If different from 1 above)	b. Application is for - <input type="checkbox"/> New Production Certificate <input type="checkbox"/> Additions to Production Certificate (Give P.C. No.)	P.C. No.
c. Applicant is holder of or a licensee under a Type Certificate or a Supplemental Type Certificate (Attach evidence of licensing agreement and give certificate number)		T.C./S.T.C. No.
6. SUPPLEMENTAL TYPE CERTIFICATE (Complete items 6a-d below)		
a. Make and model designation of product to be modified Eurocopter AS350B, B1, B2, B3, BA, D, D1 Eurocopter AS355E, F, F1, F2, N, NP		
b. Description of modification Installation of Quick Release Maintenance Step on existing mounts for Quick Release Cargo Basket (ref: STC SH08-16 / SR02680NY); Installation of Maintenance Peg Step on aft mount for Quick Release Cargo Basket; Installation of Fixed Cabin Step on forward skid tube.		
c. Will data be available for sale or release to other persons? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	d. Will parts be manufactured for sale? (Ref. FAR 21.303) <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	
7. CERTIFICATION - I certify that the above statements are true.		
Signature of certifying official 	Title P.Eng, DAR 290M (AERO Design Ltd.)	Date 12 August, 2009

MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD827-3, Rev. 0

1. NAME AND ADDRESS OF APPLICANT:		2. IDENTIFICATION OF PRODUCT					
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		MAKE: Eurocopter		MODEL: AS350 Series & AS355 Series			
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.: All Eligible		REGISTRATION: All Eligible			
3. REQUEST FOR:							
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)		<input type="checkbox"/>					
B. STC/STA REVISION		<input type="checkbox"/> STC/STA No.					
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)		<input type="checkbox"/>					
D. LIMITED STC/STA REVISION		<input type="checkbox"/> LSTC/LSTA No.					
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE		<input checked="" type="checkbox"/>					
F. F.A.A. STC REVISION		<input type="checkbox"/> STC No.					
G. FAMILIARIZATION OF F.A.A. STC		<input type="checkbox"/> STC No.					
H. REPAIR DESIGN APPROVAL (RDC)		<input type="checkbox"/>					
I. PARTS DESIGN APPROVAL (PDA)		<input type="checkbox"/>					
4. TITLE OF MODIFICATION OR REPAIR: Quick Release Maintenance Step Installation; Maintenance Peg Step Installation; Fixed Cabin Step Installation							
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Installation of quick release maintenance step on existing mounting provisions for quick release cargo basket. Installation of peg step on aft mounting beam for quick release cargo basket; Installation of fixed cabin step on the forward section of the skid tube.							
6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:							
A. TA NO. H-83, H-87 B. TC No. H9EU, H11EU C. OTHER							
7. PROPOSED BASIS OF APPROVAL:							
A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify)							
8.							
DOCUMENTATION CHECKLIST			REQUIRED		FOR DOT USE ONLY		
			YES	NO	RECEIVED		
			YES	NO	YES	NO	DATE
COMPLIANCE PROGRAM			X				
MASTER DRAWING LIST			X				
FLIGHT MANUAL SUPPLEMENT			X				
MAINTENANCE MANUAL SUPPLEMENT				X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS			X				
ENGINEERING REPORTS			X				
DESIGN DRAWINGS				X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS			X				
ELECTRICAL LOAD ANALYSIS				X			
DRAFT STC, LSTC OR RDA				X			
WEIGHT AND MOMENT CHANGE			X				
FLIGHT TEST DATA				X			
OTHER (Specify)							
9. APPLICANT'S REMARKS: Based on Canadian STC SH09-38.							
10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.							
PER: 		Consultant		12 August, 2009			
SIGNATURE OF APPLICANTS		TITLE		DATE			
11.							
SIGNATURE OF REGIONAL ENGINEER				DATE			



Transport
Canada

Transports
Canada

Aircraft Certification
800-1601 Airport Road N. E.
Calgary, AB.
T2E 6Z8

Your file Votre référence

Our file Notre référence

C-08-0913

Aero Design Ltd.
2013 39th Avenue N.E.
Calgary, AB
T2E 6R7

August 7, 2009

Attn: Mr. Ted Burgoin

Subject: Issue of Supplemental Type Certificate SH09-38 for Installation of Quick Release Maintenance Step, Maintenance Peg Step, and Fixed Cabin Step on Eurocopter AS350 and AS 355 series Rotorcraft

This Supplemental Type Certificate (STC) is issued in response to the application submitted on November 07, 2008 for the subject Design Change.

The transfer of these documents in the name of another person requires a prior approval from the Minister in accordance with Canadian Aviation Regulations (CAR) 513.25.

In accordance with CAR Part V, Subpart 61, a Manufacturing Approval is required for the manufacture of parts or kits which are to be installed by an individual or organization other than the manufacturer. Consult Information Note (ii) following Airworthiness Manual 561.01 (2) for additional guidance.

An STC holder is required to report any service problem experienced with their product. Therefore, should you become aware of any defect, malfunction, or failure resulting from the design change, it is your responsibility to submit a Service Difficulty Report to Transport Canada in accordance with CAR Part V, Subpart 91.

Regards,

Greg Oucharek, P.Eng.
Senior Engineer, Aircraft Certification
Prairie & Northern Region – Calgary
(403) 292-4990

Canada 

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.91)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82701, 82702

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.91) ✓
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format ✓
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1 ✓
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5 ✓

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A ✓
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A ✓
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1 ✓
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A ✓

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2 ✓
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3 ✓
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1 ✓
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3 ✓
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4 ✓
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

BLOCK 3

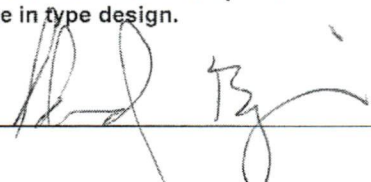
Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

<p>A527.4 AWL - Separate Section 1</p> <p>The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."</p>	<p>ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4</p>	<p>Supplemental ICA ref: Chapter 4</p> <p style="text-align: right;">✓</p>
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BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

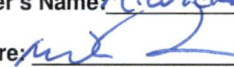
Applicants Signature:  Date: November 7, 2008

Applicants Name: E. Burgoin, P.Eng, DAR 290M

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: M. Wickens Phone # 403-292-4133 Email: @TC.gc.ca Mail Routing Symbol: LACH

Signature:  Date: AUG 7/09 NAPA Number C-08-0913

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.92)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82704, 82705

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.91) ✓
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format ✓
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1 ✓
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5 ✓

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A ✓
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A ✓
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1 ✓
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A ✓

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2 25-3 25-4 ✓
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3 -5 ✓
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1 ✓
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3 ✓
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4 6 ✓
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A ✓

BLOCK 3

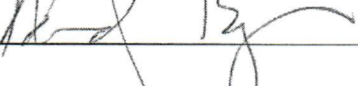
Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

<p>A527.4 AWL - Separate Section 1</p> <p>The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."</p>	<p>ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4</p>	<p>Supplemental ICA ref: Section 4</p>
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BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature:  Date: November 7, 2008

Applicants Name: E. Burgoin, P.Eng, DAR 290M

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: MURRAY WICKENS Phone # 403-292-4133 Email: PTC.GC.CA Mail Routing Symbol: RACH

Signature: [Signature] Date: AUG 7/09 NAPA Number C-08-0913

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Maintenance Peg Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.93)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82703

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.93) ✓
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format ✓
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1 ✓
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5 ✓ <i>NOT CONSISTENT WITH OTHER ICA'S</i>

*OTHER ICA'S
NO DIAGRAMS*

UPDATED
[Signature]

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A ✓
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A ✓
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1 ✓
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A ✓

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2 ✓
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3 ✓
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A ✓
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1 ✓
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3 ✓
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4 ✓
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A ✓

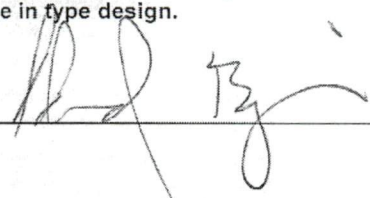
MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

BLOCK 3


Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4	Supplemental ICA ref: Section 4 ✓
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BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.	
Applicants Signature: 	Date: August 4, 2009
Applicants Name: E. Burgoin, P.Eng, DAR 290M	

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.			
Reviewer's Name: <u>M. Wiermans</u>	Phone # <u>403-292-4133</u>	Email: <u>MURRAY.WIERMANS@TC.gc.ca</u>	Mail Routing Symbol: <u>RACH</u>
Signature: 	Date: <u>AUG 7/09</u>	NAPA Number <u>C-08-0913</u>	



Transport
Canada

Transports
Canada

1100-9700 Jasper Avenue
Edmonton, Alberta
T5J 4E6

Your file Votre référence

Our file Notre référence

C-08-0913
5010-0402

August 7, 2009

AERO Design Limited
2013 39 Ave. NE
Calgary, AB
T2E 6R7

SUBJECT: Extension of DAR 290M Authority – Eurocopter AS350 Fixed Cabin Step Installations, Approval SH09-38

This is in response to your May 21, 2009 request for extension of delegation to cover the subject design change. You are hereby authorized to make findings of compliance for the following Airworthiness Standard as listed in Compliance Plan CP827, Rev 0:

FAR 27.251 Vibration
FAR 27.629 Flutter

This is a one-time extension, granted in accordance with Airworthiness Manual, Chapter 505.223(a) and is limited to be exercised for this approval only.

If you have any questions or wish to discuss this project further, please contact the project OPI, Greg Oucharek at the Calgary TCC.

Yours truly,

F.J.B. Wright
Regional Manager Aircraft Certification
Prairie and Northern Region
Phone: 780-495-3856
Fax: 780-495-7963

Canada

FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE827-1 Initial Issue Date: 7 August, 2009 Revision: 0 Revision Date:	
Aircraft Mfr: Eurocopter Aircraft Model: AS350 & AS355 Series Registration: ALL ELIGIBLE	Model / Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	Approval No.: SH09-38 Delegation No.: 290M Delegate Name: E. Burgoin Company: AERO Design Ltd.	

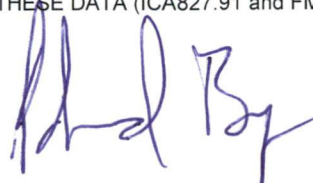
LIST OF APPROVED REPORTS AND DATA

Document Number	Revision	Document Title	Compliance Status
DCL827-1	2	Document Control List and all documents referred to therein	As per Compliance Program, CP827, Revision 0
DCL827-11	1	Document Control List and all documents referred to therein	
ER827.01	1	Engineering Report	
82701	0	Quick Release Maintenance Step Installation (High)	
82702	0	Quick Release Maintenance Step Installation (Low)	
82710	0	Step Assembly	
82720	0	Step End Fabrication	
DATA APPROVED BY TRANSPORT CANADA			
ICA827.91 FMS827.90	1 0	Instructions for Continued Airworthiness Flight Manual Supplement	

CERTIFICATION

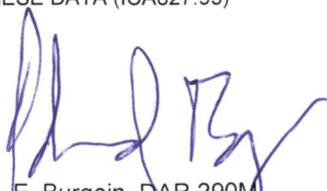
UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIREMENTS.

I THEREFORE ☒ RECOMMEND FOR APPROVAL OF THESE DATA (ICA827.91 and FMS827.90)
☒ APPROVE THESE DATA



E. Burgoin, DAR 290M

FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE827-2 Initial Issue Date: 7 August, 2009 Revision: 0 Revision Date: Approval No.: SH09-38 Delegation No.: 290M Delegate Name: E. Burgoin Company: AERO Design Ltd.	
Aircraft Mfr: Eurocopter Aircraft Model: AS350 & AS355 Series Registration: ALL ELIGIBLE	Model / Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>		
LIST OF APPROVED REPORTS AND DATA			
Document Number	Revision	Document Title	Compliance Status
DCL827-2 ER827.01 82703 82735	1 1 0 0	Document Control List and all documents referred to therein Engineering Report Maintenance Peg Step Installation Step Assembly	As per Compliance Program, CP827, Revision 0
DATA APPROVED BY TRANSPORT CANADA			
ICA827.93	0	Instructions for Continued Airworthiness	
CERTIFICATION UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIRMENTS. I THEREFORE <input checked="" type="checkbox"/> RECOMMEND FOR APPROVAL OF THESE DATA (ICA827.93) <input checked="" type="checkbox"/> APPROVE THESE DATA  E. Burgoin, DAR 290M			

FORM AE-100

DEPARTMENT OF TRANSPORT STATEMENT OF COMPLIANCE OF AIRCRAFT OR AIRCRAFT COMPONENTS WITH THE AIRWORTHINESS REQUIREMENTS		AE-100 No.: AE827-3 Initial Issue Date: 28 July, 2009 Revision: 0 Revision Date:
Aircraft Mfr: Eurocopter Aircraft Model: AS350 & AS355 Series Registration: ALL ELIGIBLE	Model / Type Airplane <input type="checkbox"/> Helicopter <input checked="" type="checkbox"/> Appliance <input type="checkbox"/> Component <input type="checkbox"/>	Approval No.: SH09-38 Delegation No.: 290M Delegate Name: E. Burgoin Company: AERO Design Ltd.

LIST OF APPROVED REPORTS AND DATA

Document Number	Revision	Document Title	Compliance Status
DCL827-3	3	Document Control List and all documents referred to therein	As per Compliance Program, CP827, Revision 0
DCL827-13	2	Document Control List and all documents referred to therein	
ER827.01	1	Engineering Report	
82705	0	Long Fixed Cabin Step Installation	
82706	0	Short Fixed Cabin Step Installation	
82713	0	Long Fixed Cabin Step Assembly	
82714	0	Short Fixed Cabin Step Assembly	
82721	1	Bracket Fabrication	
82731	0	Cabin Step Parts Fabrication	
82732	0	Short Cabin Step Parts Fabrication	
DATA APPROVED BY TRANSPORT CANADA			
ICA827.92	1	Instructions for Continued Airworthiness	

CERTIFICATION

UNDER THE AUTHORITY VESTED IN ME BY THE DEPARTMENT OF TRANSPORT, I HEREBY CERTIFY THAT THE DATA LISTED ABOVE AND ON THE ATTACHED SHEETS NUMBERED Nil HAVE BEEN EXAMINED IN ACCORDANCE WITH ESTABLISHED PROCEDURES AND FOUND TO COMPLY, TO THE BEST OF MY KNOWLEDGE AND BELIEF WITH THE PERTINENT COMPLIANCE REQUIREMENTS.

I THEREFORE ☒ RECOMMEND FOR APPROVAL OF THESE DATA (ICA827.92)
☒ APPROVE THESE DATA


 E. Burgoin, DAR 290M

AS350 & AS355 SERIES HELICOPTERS

FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE MAINTENANCE STEP

QUICK RELEASE MAINTENANCE STEP MODELS: 82701, 82702

Supplemental Type Certificate No. SH09-38

Sections I, II, III, IV, and V of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section II, Limitations, is mandatory. Section VI and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Eurocopter AS350 and AS355 Series Helicopters when fitted with the Quick Release Maintenance Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement refer to the Approved Flight Manual and other approved Flight Manual Supplements.



Revision 0
04 August 2009

Page 1 of 7
TRANSPORT CANADA APPROVED

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I	General	3
II	Limitations	3
III	Emergency ProCedures	3
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VI	Installation / removal instructions	4
VII	Weight and Balance	5

Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	By
0	4 Aug 2009	None		

AERO DESIGN LTD.

FMS827.90

I GENERAL

No change.

II LIMITATIONS

No change.

III EMERGENCY PROCEDURES

No change.

IV NORMAL PROCEDURES

No change.

V PERFORMANCE

No change.

Revision 0
04 August 2009

AUG 07 2009

Page 3 of 7
TRANSPORT CANADA APPROVED

VI INSTALLATION / REMOVAL INSTRUCTIONS

The beams are installed in accordance with Supplemental Type Certificate SH08-16. The maintenance step is installed in accordance with drawing 82701 or 82702, as applicable. Removal of the step leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of step and which weight and balance amendment is in effect is required when step is installed or removed.

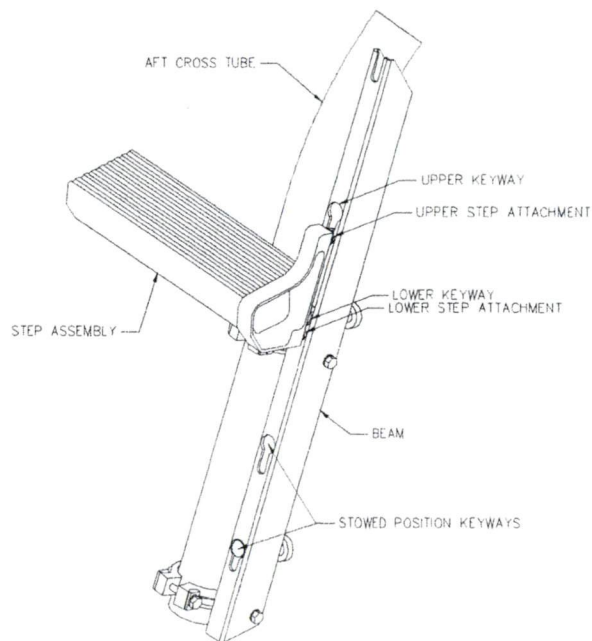


Figure 1 – Step Attachment Features

1. Installation - Refer to Figure 1.
 - a) Set step upper attachment into upper keyway in forward and aft beams.
 - b) Lift step until lower attachment fitting hits stop.
 - c) Push fitting into keyway and slide step down until locked.

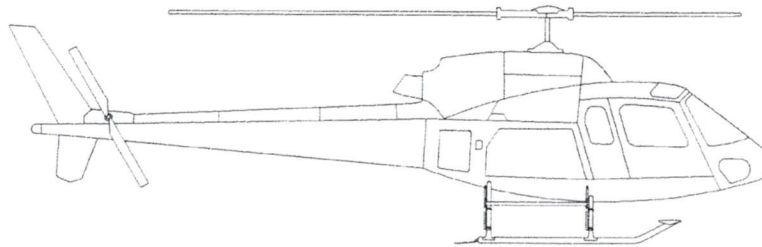
2. Removal - Refer to Figure 1.

- a) Pull knob at bottom end of forward beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
- b) Pull knob at bottom end of aft beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
- c) Lift step until upper attachments are out of keyways on both beams and remove step from helicopter

VII WEIGHT AND BALANCE

This section contains weight and balance information for maintenance step models 82701 and 82702. Each model has multiple configurations. Refer to the weight and balance information applicable to model and configuration installed.

1. **MAINTENANCE STEP 82701.** The following weight and balance is for the quick release maintenance step installed in accordance with drawing 82701. Upper and lower (stowed) positions are provided, either position is approved for flight.

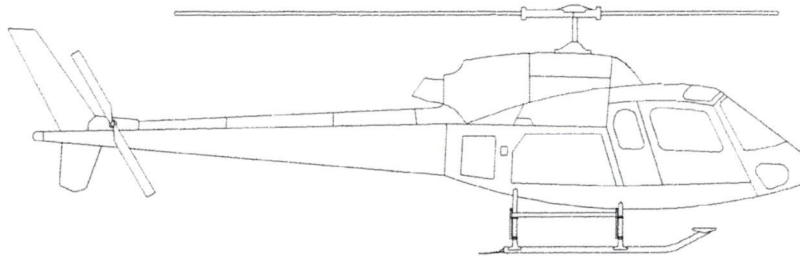


Maintenance Step: Configuration 82701-01 (High Mounted Provisions)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82701-01 ¹ (upper position) (RH)	6.4 lb	135.7 in	868.5 in*lb	38.9 in	249.0 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	988.0 mm	2 865.2 mm*kg
82701-01 ¹ (stowed position) (RH)	6.4 lb	135.7 in	868.5 in*lb	41.7 in	266.9 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	1059.0 mm	3 071.1 mm*kg

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82701-01 ¹ (upper position) (LH)	6.4 lb	135.7 in	868.5 in*lb	- 38.9 in	- 249.0 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	- 988.0 mm	- 2 865.2 mm*kg
82701-01 ¹ (stowed position) (LH)	6.4 lb	135.7 in	868.5 in*lb	- 41.7 in	- 266.9 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	- 1059.0 mm	- 3 071.1 mm*kg

2. **MAINTENANCE STEP 82702.** The following weight and balance is for the maintenance step installed in accordance with drawing 82702.



Maintenance Step: Configuration 82702-01 (Low Mounted Provisions)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82702-01 ¹	6.4 lb	135.7 in	868.5 in*lb	39.1 in	250.2 in*lb
(RH)	2.9 kg	3446.8 mm	9 979.8 mm*kg	993.1 mm	2 880.1 mm*kg

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82702-01 ¹	6.4 lb	135.7 in	868.5 in*lb	- 39.1 in	- 250.2 in*lb
(LH)	2.9 kg	3446.8 mm	9 979.8 mm*kg	- 993.1 mm	- 2 880.1 mm*kg

¹ Weight and balance is for Maintenance Step only. Mounting beams are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

Transport
CanadaTransports
Canada

1100-9700 Jasper Avenue
Edmonton, Alberta
T5J 4E6

Your file Votre référence

Our file Notre référence

C-08-0913**5010-0402**

August 7, 2009

AERO Design Limited
2013 39 Ave. NE
Calgary, AB
T2E 6R7

**SUBJECT: Extension of DAR 290M Authority – Eurocopter AS350 Fixed Cabin Step
Installations, Approval SH09-38**

This is in response to your May 21, 2009 request for extension of delegation to cover the subject design change. You are hereby authorized to make findings of compliance for the following Airworthiness Standard as listed in Compliance Plan CP827, Rev 0:

FAR 27.251	Vibration
FAR 27.629	Flutter

This is a one-time extension, granted in accordance with Airworthiness Manual, Chapter 505.223(a) and is limited to be exercised for this approval only.

If you have any questions or wish to discuss this project further, please contact the project OPI, Greg Oucharek at the Calgary TCC.

Yours truly,

F.J.B. Wright
Regional Manager Aircraft Certification
Prairie and Northern Region
Phone: 780-495-3856
Fax: 780-495-7963

Canada

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Maintenance Peg Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.93)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82703

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.93)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

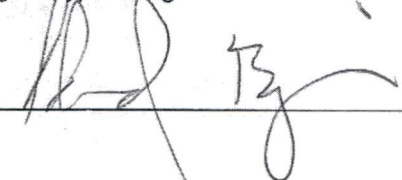
MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4	Supplemental ICA ref: Section 4
---	--	---------------------------------

BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.	
Applicants Signature: 	Date: August 4, 2009
Applicants Name: E. Burgoin, P.Eng, DAR 290M	

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.	
Reviewer's Name: _____	Phone # _____ Email: _____ Mail Routing Symbol: _____
Signature: _____	Date: _____ NAPA Number _____

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.93

EUROCOPTER AS350 & AS355 SERIES MAINTENANCE PEG STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Maintenance Peg Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-2, Revision 1, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0
Date: 4 August 2009

AERO Design Ltd.
Engineering Consultants

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7
Phone: (403) 250-8027
Fax: (403) 250-8333
E-Mail: info@aerodesign.ca

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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0	4 August 2009		Original Issue

LIST OF EFFECTIVE PAGES

List of Revisions

Revision 0 (Original Issue) 4 August 2009

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	0
Revision Record/List of Effective Pages	2	0
Table of Contents	3	0
00-00-00	4-5	0
04-00-00	6	0
05-00-00	7	0
25-50-00	8-9	0

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CHAPTER 5 – INSPECTION REQUIREMENTS	7
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5-3 PROTECTIVE TREATMENT INFORMATION	7
CHAPTER 25 – EQUIPMENT AND FURNISHINGS	8
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CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Maintenance Peg Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness
LH - Left Hand
RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Maintenance Peg Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

The Maintenance Peg Step requires installation of the High Mounted Attachment Provisions in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION

The Maintenance Peg Step installation consists of a tube that sticks out inboard and aft from the High Mounted External Attachment Provision. The Maintenance Peg Step is required because installation of the High Mounted External Attachment Provision requires the existing step provided by Eurocopter to be removed, if installed.

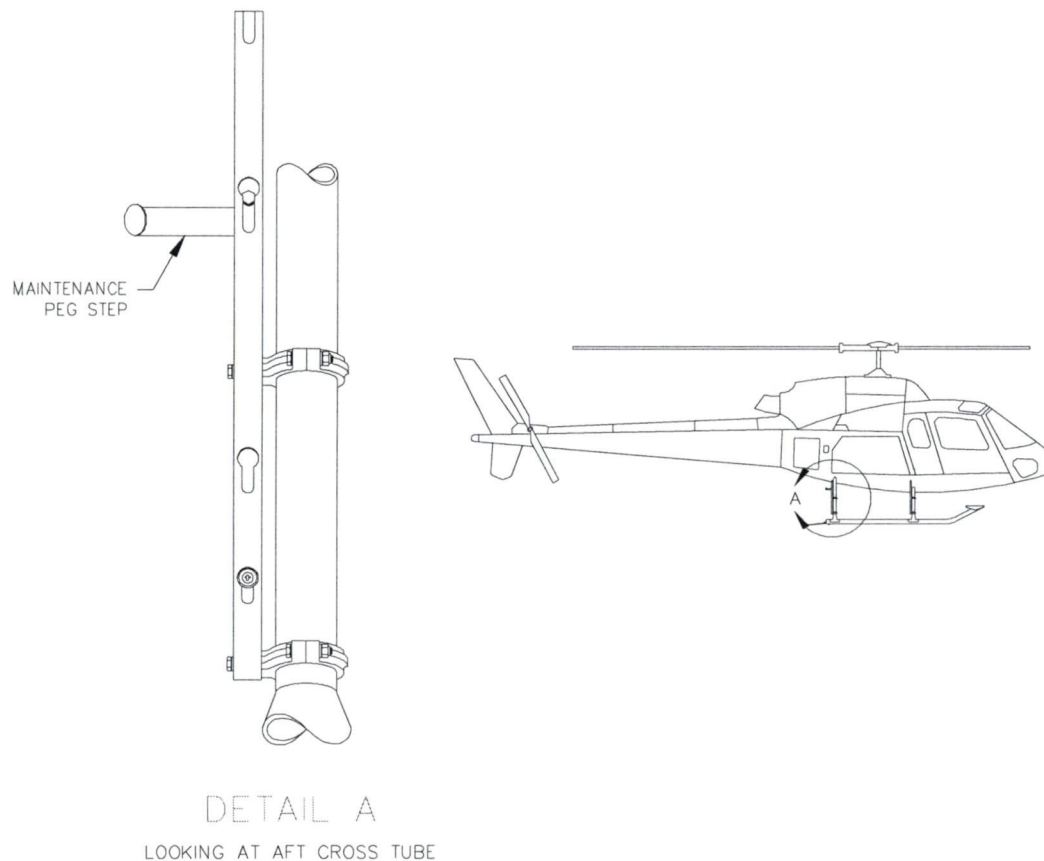


Figure 1 – Maintenance Peg Step Installation

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Maintenance Peg Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Maintenance Peg Step.

Daily Inspection

1. Inspection Area: Step
 - a) Inspect the Step for condition and security.

100 Hour or Annual Inspection

1. Inspection Area: Step
 - a) Visually inspect all mounting hardware for condition and security.
 - b) Visually inspect step for cracks, corrosion or other damage.

Special Inspections

1. Following a hard landing inspect the Maintenance Peg Step installation in accordance with the 100 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Step Assembly

Part	Type of Damage	Max. Allowable	Repair
Step	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks	None	N/A
	Bent Lugs	None	N/A

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Maintenance Peg Step Installation may be applied to the right and/or left side of the helicopter.

25-1 STEP INSTALLATION

Refer to Figure 2. Beam does not have to be installed on helicopter prior to this installation.

1. Locate Step Assembly 78635-01 / -02 (right/left) on aft Beam 78631-01 by inserting bushings on Step Assembly into holes provided on inboard face of aft Beam. Fasten with two AN4-5A Bolts, AN960-416 Washers, and MS21044N4 Nuts. Torque bolts to 30-40 in-lbs.

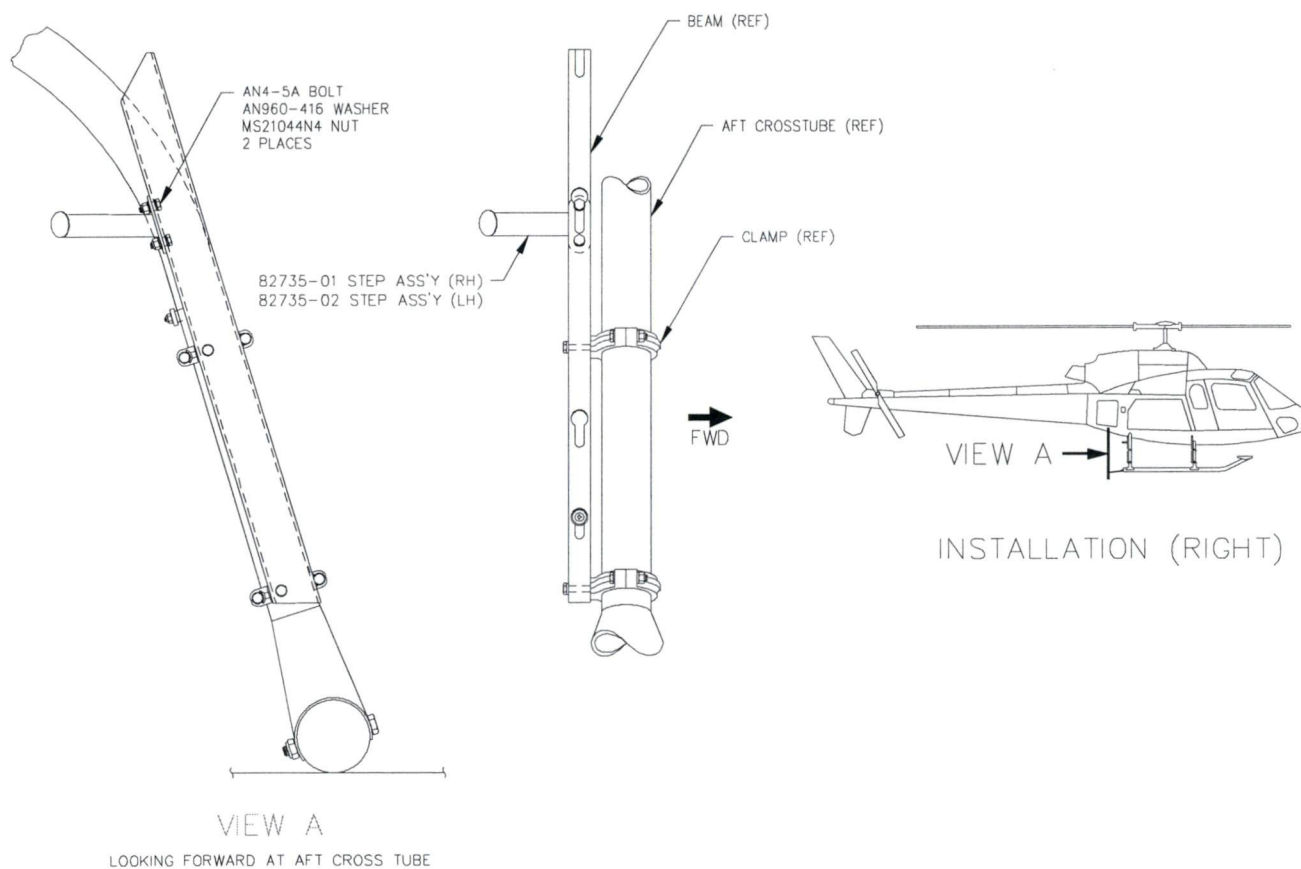


Figure 2 – Maintenance Peg Step Attachment Details

25-2 STEP REMOVAL

Refer to Figure 2.

1. Remove two AN4-5A Bolts, AN960-416 Washers, and MS21044N4 Nuts attaching Step Assembly to aft Beam. Remove Step Assembly.

25-3 WEIGHT AND BALANCE**Standard**

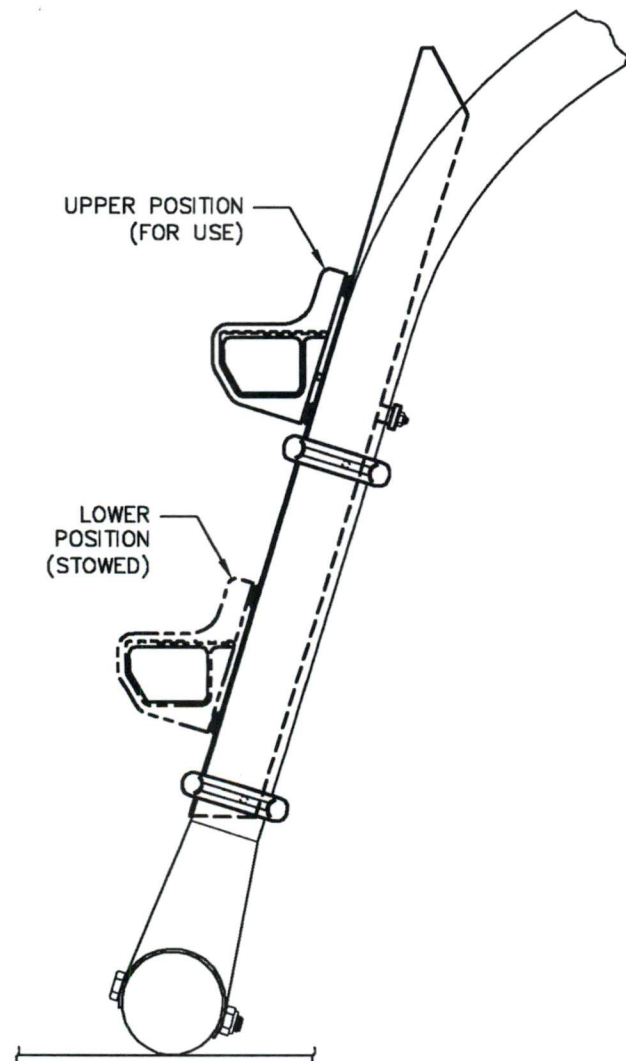
P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82735-01	Maintenance Peg Step (Right)	0.4	165.3	66.1	33.9	13.6
82735-02	Maintenance Peg Step (Left)	0.4	165.3	66.1	-33.9	-13.6

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	Moment mm-kg
82735-01	Maintenance Peg Step (Right)	0.2	4199	763	861	157
82735-02	Maintenance Peg Step (Left)	0.2	4199	763	-861	-157

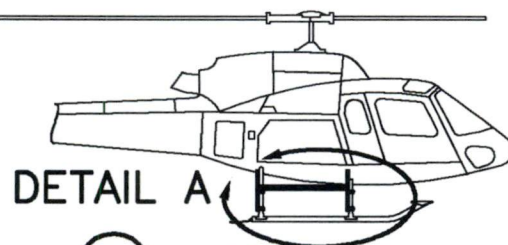
25-4 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.



VIEW B-B

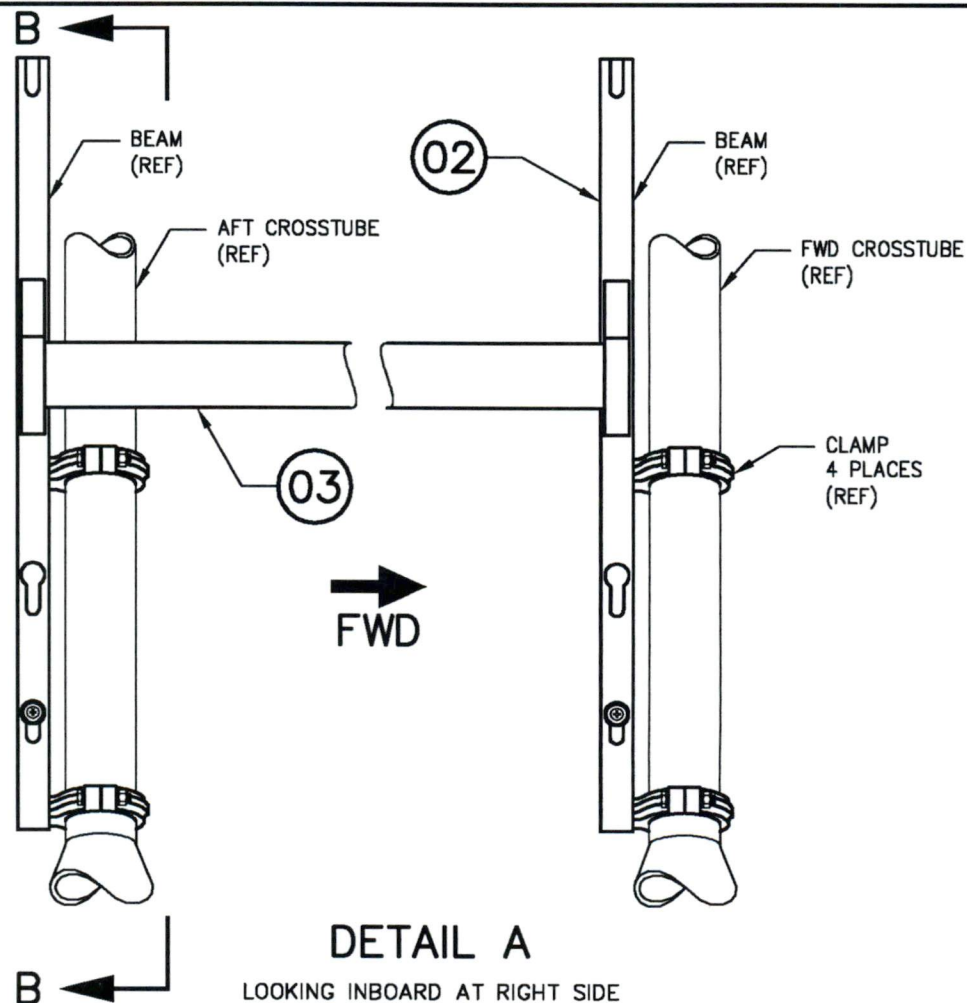
LOOKING AFT AT AFT CROSS TUBE



DETAIL A

01 INSTALLATION

NOT TO SCALE



DETAIL A

LOOKING INBOARD AT RIGHT SIDE

APPROVALS	DATE
DRAWN: JEFF CLARKE	20 OCT 2008
CHECKED: E. BURGOIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:	
DECIMALS	ANGLES
X.XXX ± 0.010	$\pm 1/2^\circ$
X.XX ± 0.03	
X.X ± 0.1	

AERO DESIGN LTD.				
CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca				
EUROCOPTER AS350 & AS355 SERIES MAINTENANCE STEP INSTALLATION HIGH INSTALLATION				
NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	
SHEET 1 OF 2	A4	82701	0	

--- NOTICE ---
THIS DRAWING CONTAINS INFORMATION AND DATA WHICH IS PROPRIETARY TO AERO DESIGN LTD. THIS DRAWING, OR ANY PORTION THEREOF, MAY NOT BE REPRODUCED, COPIED, OR DUPLICATED IN ANY MANNER, NOR USED FOR MANUFACTURING WITHOUT THE WRITTEN CONSENT OF AERO DESIGN LTD. BY ACCEPTING THIS DRAWING FOR REFERENCE, THE RECIPIENT AGREES TO HOLD AERO DESIGN LTD. HARMLESS FROM THE USE, OR MISUSE, OF THIS DRAWING OR THE INFORMATION CONTAINED THEREON.

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE - RESIZED TO LETTER	BJC	22/07/09

NOTES

1. INSTALLATION OF THE HIGH MOUNTED ATTACHMENT PROVISIONS IN ACCORDANCE WITH DRAWING 78601 IS A MANDATORY PRE-REQUISITE TO THIS INSTALLATION. INSTALLATION ON THE RIGHT AND/OR LEFT SIDE IS APPROVED. WEIGHT AND BALANCE IS SHOWN FOR RIGHT SIDE, LEFT LATERAL ARMS ARE NEGATIVE.
2. THE STEP MAY BE INSTALLED IN THE UPPER OR LOWER POSITION FOR FLIGHT. INSTALLATION IN THE LOWER POSITION IS REQUIRED WHEN A CARGO BASKET IS TO BE INSTALLED IN ACCORDANCE WITH STC SH08-16.

WEIGHT AND BALANCE - METRIC

ITEM	DESCRIPTION	WEIGHT (KG)	LONGITUDINAL		LATERAL	
			ARM (MM)	MOMENT (MM-KG)	ARM (MM)	MOMENT (MM-KG)
03	STEP ASSEMBLY	3.0	3447	10340	988	2964
02	PROVISIONS INSTALLATION	4.5	3442	15644	935	4249
01	MAINTENANCE STEP INSTALLATION	7.5	3444	25984	956	7213
03	STEP ASSEMBLY (STOWED)	3.0	3447	10340	1059	3178
02	PROVISIONS INSTALLATION	4.5	3442	15644	935	4249
01	MAINTENANCE STEP INSTALLATION	7.5	3444	25984	984	7426

WEIGHT AND BALANCE - STANDARD

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
03	STEP ASSEMBLY	6.6	135.7	895.6	38.9	256.7
02	PROVISIONS INSTALLATION	10.0	135.5	1355.0	36.8	368.0
01	MAINTENANCE STEP INSTALLATION	16.6	135.6	2250.6	37.6	624.7
03	STEP ASSEMBLY (STOWED)	6.6	135.7	895.6	41.7	275.2
02	PROVISIONS INSTALLATION	10.0	135.5	1355.0	36.8	368.0
01	MAINTENANCE STEP INSTALLATION	16.6	135.6	2250.6	38.7	643.2

1	82710-01	03	STEP ASSEMBLY
1	78601-02	02	HIGH MOUNTED PROVISIONS INST'N
	82701-01	01	MAINTENANCE STEP INSTALLATION
01	PART NO.	ITEM	DESCRIPTION
QTY	LIST OF MATERIALS		

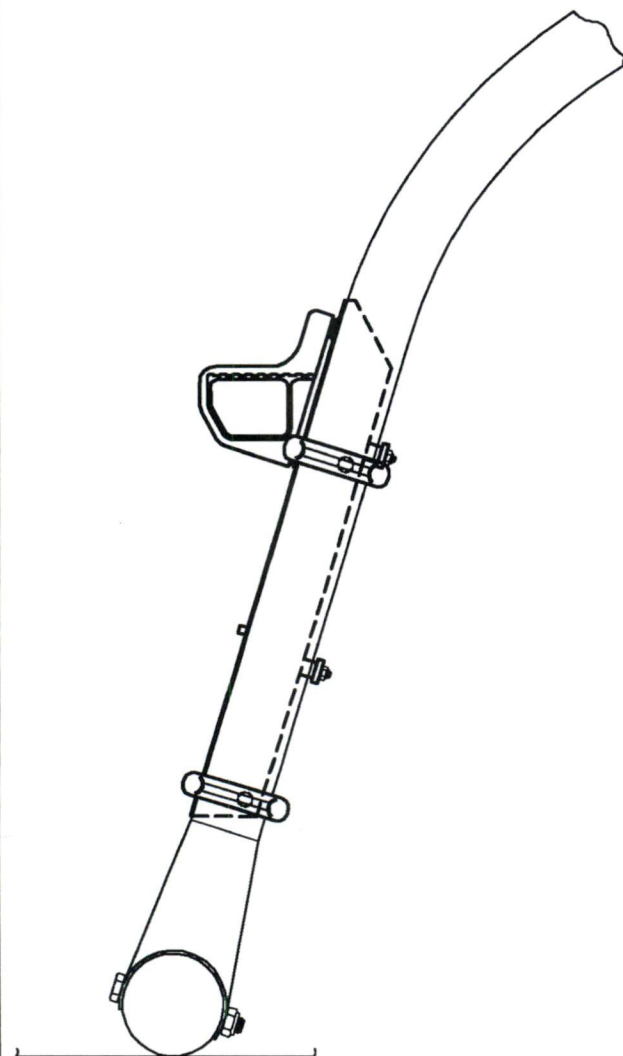
APPROVALS	DATE
DRAWN: JEFF CLARKE	20 OCT 2008
CHECKED: E. BURGOIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS ANGLES X.XXX ±0.010 ±1/2° X.XX ±0.03 X.X ±0.1	

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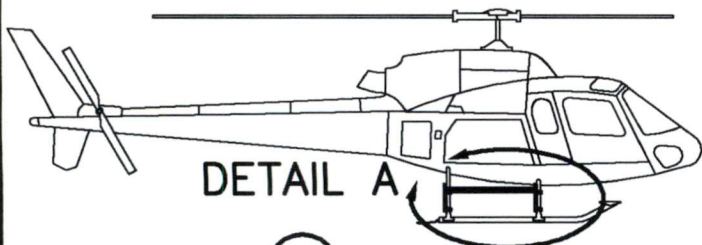
EUROCOPTER AS350 & AS355 SERIES MAINTENANCE STEP INSTALLATION HIGH INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 1 OF 2	A4	82701	0

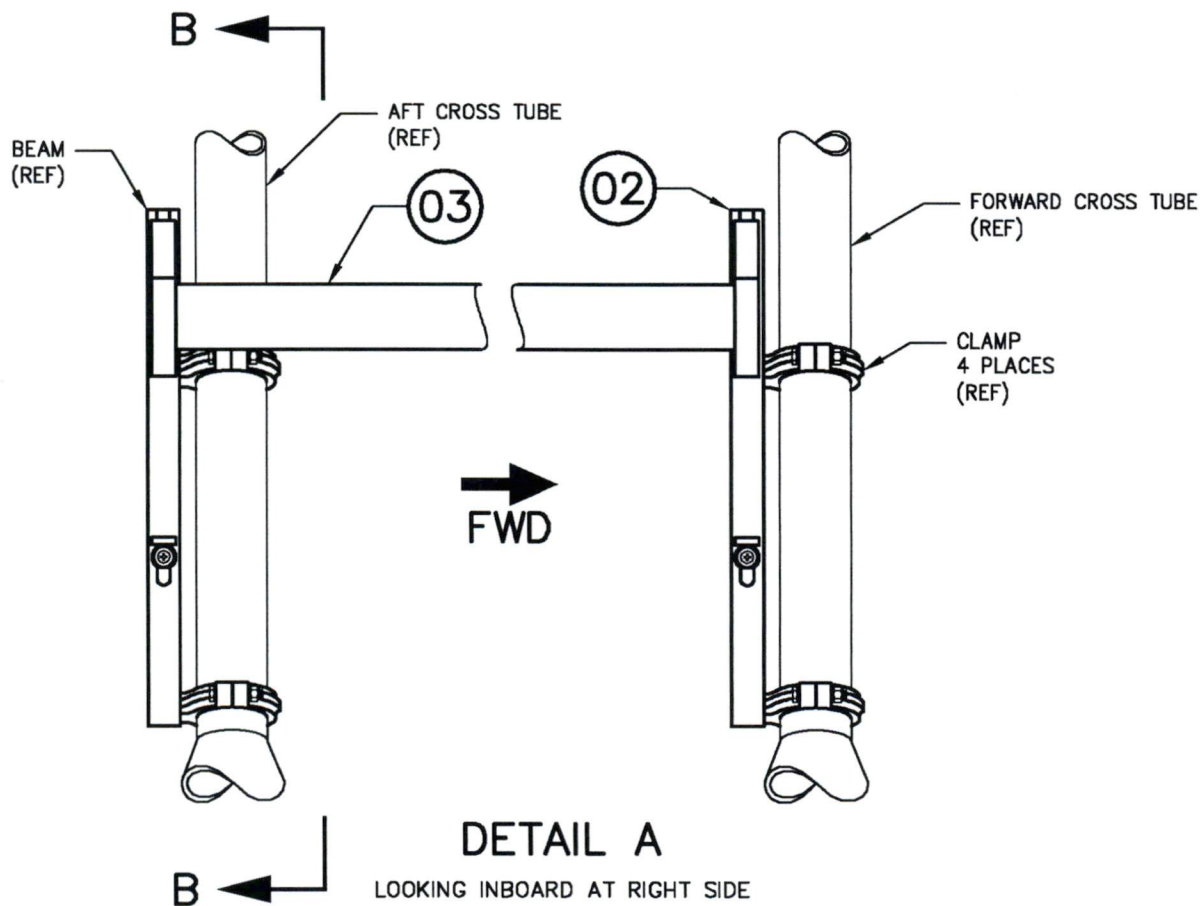


VIEW B-B

LOOKING AFT AT AFT CROSS TUBE



01 INSTALLATION
NOT TO SCALE



APPROVALS		DATE		<div>AERO DESIGN LTD.</div> <div>CONSULTING ENGINEERS, TRANSPORT CANADA APPROVALS, DAR 290M 2013 - 39TH AVENUE N.E., CALGARY, ALBERTA, CANADA, T2E 6R7 tel: (403) 250-8027 fax: (403) 250-8333 www.aerodesign.ca</div>					
DRAWN: JEFF CLARKE		20 OCT 2008							
CHECKED: E. BURGOIN									
<div>UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:</div> <div>DECIMALS ANGLES</div> <div>X.XXX ±0.010 ±1/2°</div> <div>X.XX ±0.03</div> <div>X.X ±0.1</div>				<div>EUROCOPTER AS350 & AS355 SERIES MAINTENANCE STEP INSTALLATION LOW INSTALLATION</div>					
				NOT TO SCALE		DWG. SIZE	DWG. NO.	REV.	
				SHEET 1 OF 2		A4	82702	0	

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REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	ORIGINAL ISSUE - RESIZED TO LETTER	BJC	22/07/09

NOTES

1. INSTALLATION OF THE LOW MOUNTED ATTACHMENT PROVISIONS IN ACCORDANCE WITH DRAWING 78601 IS A MANDATORY PRE-REQUISITE TO THIS INSTALLATION. INSTALLATION ON THE RIGHT AND/OR LEFT SIDE IS APPROVED. WEIGHT AND BALANCE IS SHOWN FOR RIGHT SIDE, LEFT LATERAL ARMS ARE NEGATIVE.

WEIGHT AND BALANCE - METRIC

ITEM	DESCRIPTION	WEIGHT (KG)	LONGITUDINAL		LATERAL	
			ARM (MM)	MOMENT (MM-KG)	ARM (MM)	MOMENT (MM-KG)
03	STEP ASSEMBLY	2.9	3447	9980	993	2880
02	PROVISIONS INSTALLATION	3.2	3440	11007	955	3056
01	MAINTENANCE STEP INSTALLATION	6.1	3440	20987	973	5936

WEIGHT AND BALANCE - STANDARD

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
03	STEP ASSEMBLY	6.4	135.7	868.5	39.1	250.2
02	PROVISIONS INSTALLATION	7.0	135.4	947.9	37.6	263.5
01	MAINTENANCE STEP INSTALLATION	13.4	135.6	1816.4	38.3	513.7

APPROVALS	DATE
DRAWN: JEFF CLARKE	20 OCT 2008
CHECKED: E. BURGOIN	

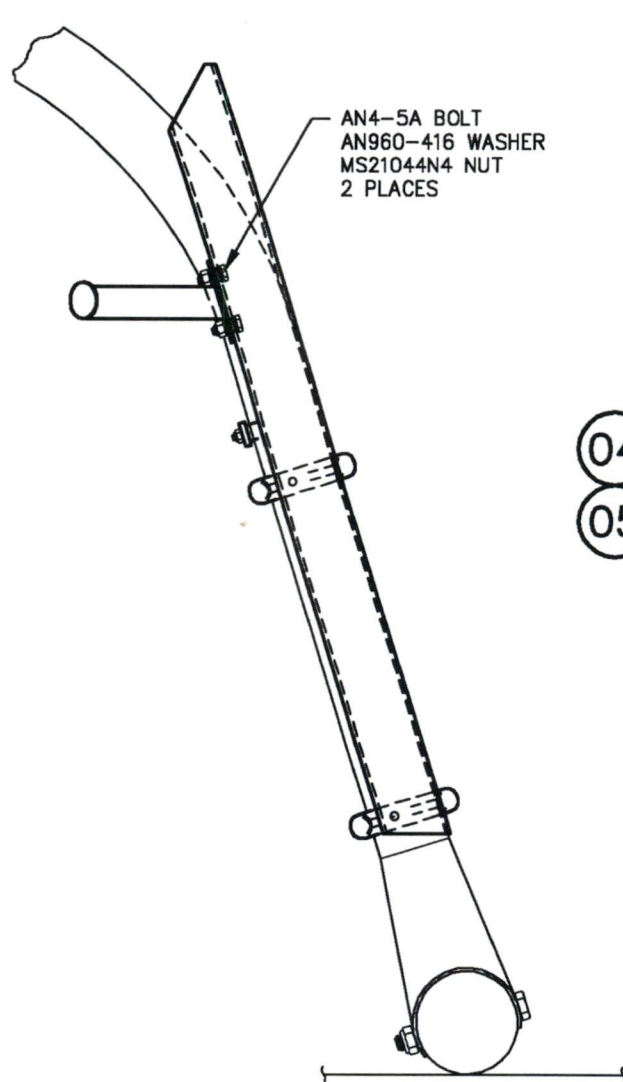
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UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
TOLERANCES ON:
DECIMALS ANGLES
X.XXX ±0.010 ±1/2"
X.XX ±0.03
X.X ±0.1

EUROCOPTER AS350 & AS355 SERIES MAINTENANCE STEP INSTALLATION LOW INSTALLATION

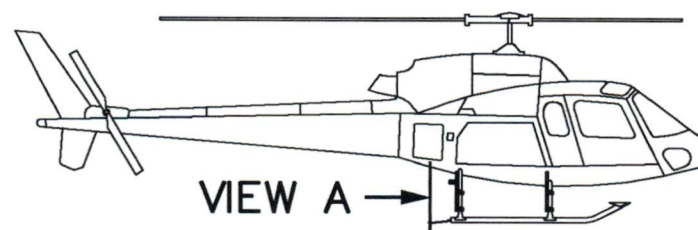
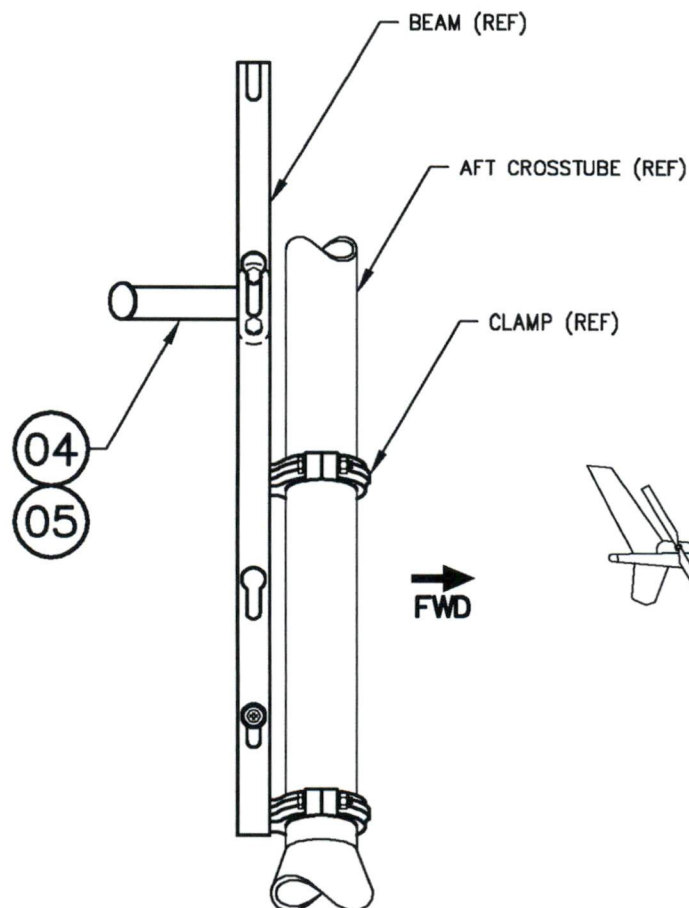
1	82710-01	03	STEP ASSEMBLY
1	78601-01	02	LOW MOUNTED PROVISIONS INST'N
	82702-01	01	MAINTENANCE STEP INSTALLATION
QTY	PART NO.	ITEM	DESCRIPTION
LIST OF MATERIALS			

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	
SHEET 2 OF 2	A4	82702	0	



VIEW A

LOOKING FORWARD AT AFT CROSS TUBE



- 01 INSTALLATION (RIGHT)
- 02 INSTALLATION (LEFT)

NOT TO SCALE

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DRAWN: JEFF CLARKE		06 NOV 2008						
CHECKED: E. BURGOIN								
<div>UNLESS OTHERWISE SPECIFIED</div> <div>DIMENSIONS ARE IN INCHES.</div> <div>TOLERANCES ON:</div> <div>DECIMALS ANGLES</div> <div>X.XXX ±0.010 ±1/2"</div> <div>X.XX ±0.03</div> <div>X.X ±0.1</div>				EUROCOPTER AS350 & AS355 SERIES				
				MAINTENANCE STEP INSTALLATION				
				PEG STEP INSTALLATION				
				NOT TO SCALE		DWG. SIZE	DWG. NO.	REV.
				SHEET 1 OF 2		A4	82703	0

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0	INITIAL ISSUE	BJC	NOV 06/08

NOTES

1. INSTALLATION OF THE HIGH MOUNTED ATTACHMENT PROVISIONS IN ACCORDANCE WITH DRAWING 78601 IS A MANDATORY PRE-REQUISITE TO THIS INSTALLATION. INSTALLATION ON THE RIGHT AND/OR LEFT SIDE IS APPROVED. WEIGHT AND BALANCE IS SHOWN FOR RIGHT SIDE, LEFT LATERAL ARMS ARE NEGATIVE.

WEIGHT AND BALANCE – METRIC

ITEM	DESCRIPTION	WEIGHT (KG)	LONGITUDINAL		LATERAL	
			ARM (MM)	MOMENT (MM-KG)	ARM (MM)	MOMENT (MM-KG)
03	STEP ASSEMBLY	0.2	4199	763	861	157
02	PROVISIONS INSTALLATION	4.5	3442	15644	935	4249
01	MAINTENANCE STEP INSTALLATION	4.7	3471	16407	932	4405

WEIGHT AND BALANCE – STANDARD

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
03	STEP ASSEMBLY	0.4	165.3	66.1	33.9	13.6
02	PROVISIONS INSTALLATION	10.0	135.5	1355.0	36.8	368.0
01	MAINTENANCE STEP INSTALLATION	10.4	136.6	1421.1	36.7	381.6

2	2	MS21044N4		NUT
2	2	AN960-416		WASHER
2	2	AN4-5A		BOLT
1		78635-02	05	STEP ASSEMBLY (LEFT)
	1	78635-01	04	STEP ASSEMBLY (RIGHT)
1	1	78601-02	03	HIGH MOUNTED PROVISIONS INSTALLATION
		82703-02	02	PEG STEP INSTALLATION (LEFT)
		82703-01	01	PEG STEP INSTALLATION (RIGHT)
02	01	PART NO.	ITEM	DESCRIPTION
QTY	LIST OF MATERIALS			

APPROVALS

DATE

DRAWN: JEFF CLARKE 06 NOV 2008
CHECKED: E. BURGOIN

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
TOLERANCES ON:
DECIMALS ANGLES
X.XXX ±0.010 ±1/2"
X.XX ±0.03
X.X ±0.1

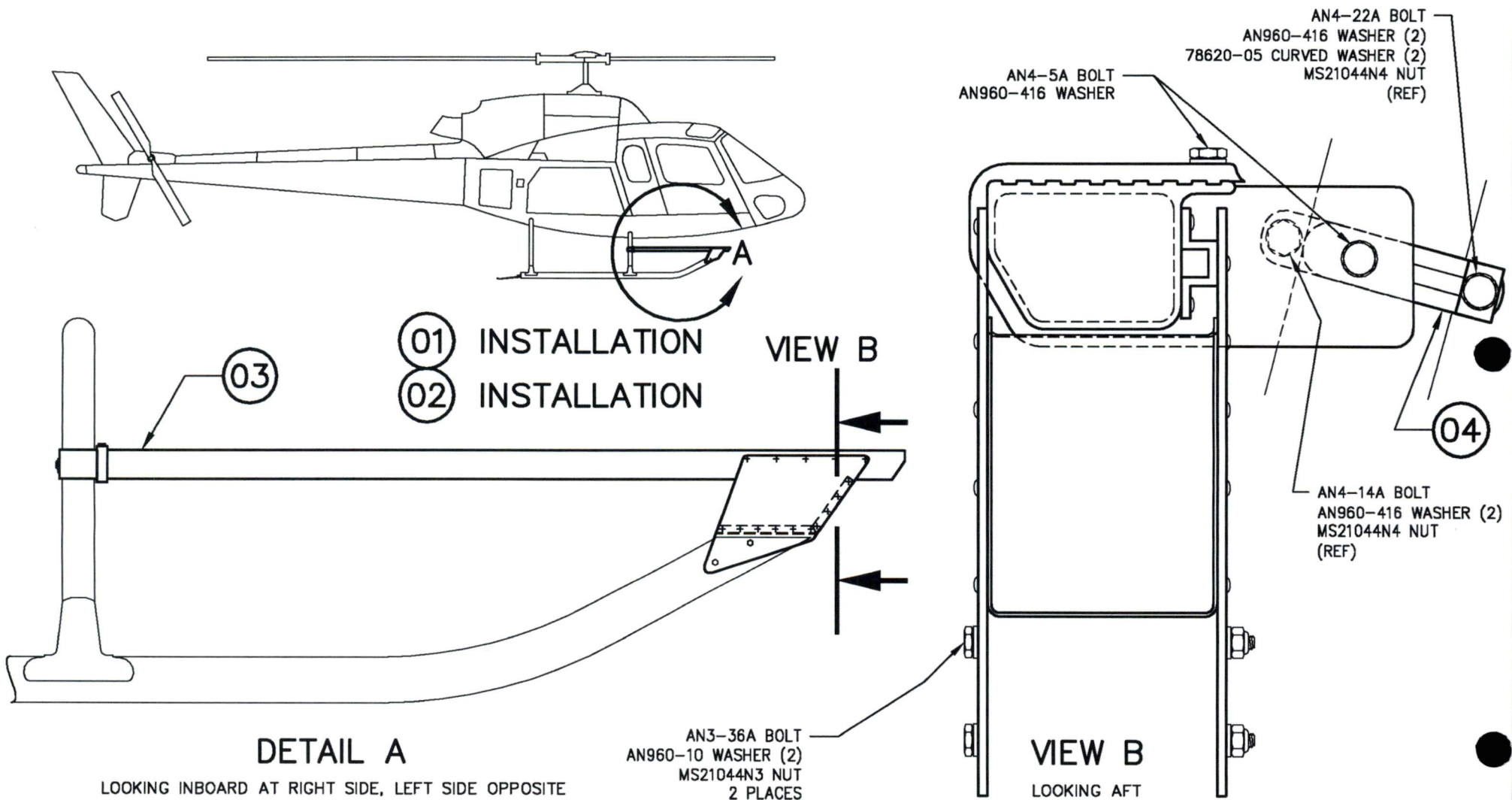
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EUROCOPTER AS350 & AS355 SERIES MAINTENANCE STEP INSTALLATION PEG STEP INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	
SHEET 2 OF 2	A4	82703	0	

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2	2	MS21044N3	NUT
4	4	AN960-10	WASHER
2	2	AN3-36A	BOLT
2	2	AN960-416	WASHER
2	2	AN4-5A	BOLT
1	1	78620-01	04 CLAMP ASSEMBLY
1		82713-02	03 STEP ASSEMBLY (LEFT)
	1	82713-01	03 STEP ASSEMBLY (RIGHT)
		82705-02	02 INSTALLATION (RIGHT SIDE)
		82705-01	01 INSTALLATION (RIGHT SIDE)
01	01	PART NO.	ITEM DESCRIPTION
QTY	QTY	LIST OF MATERIALS	

APPROVALS	DATE
DRAWN: JEFF CLARKE	20 OCT 2008
CHECKED: E. BURGOIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:	
DECIMALS	ANGLES
X.XXX ±0.010	±1/2°
X.XX ±0.03	
X.X ±0.1	

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EUROCOPTER AS350 & AS355 SERIES CABIN STEP INSTALLATION LONG FIXED STEP INSTALLATION			
NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 1 OF 2	A4	82705	0

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0			

NOTES

1. REMOVE EXISTING STEP CAP FROM END OF SKID TUBE. FILL VOID WITH 2 PART POLYURETHANE FOAM.
REMOVE EUROCOPTER "VERTICAL STEP" IF FITTED. PLUG HOLES IN SKID TUBE WITH CHERRY BLIND RIVETS.
2. TORQUE AN3 BOLTS TO 20 - 25 INCH-POUNDS.
TORQUE AN4 BOLTS TO 50 - 70 INCH-POUNDS.
3. THIS INSTALLATION IS NOT COMPATIBLE WITH AERO DESIGN LTD. LOW OR HIGH MOUNTED QUICK RELEASE CARGO BASKET
INSTALLATION IN ACCORDANCE WITH DRAWING 78401. ALL OTHER AERO DESIGN LTD. QUICK RELEASE CARGO BASKET
INSTALLATIONS ARE COMPATIBLE WITH THIS INSTALLATION.
4. THIS INSTALLATION MAY BE APPLIED TO THE RIGHT AND/OR LEFT SIDES. WEIGHT AND BALANCE IS GIVEN FOR RIGHT
SIDE, LATERAL ARM IS NEGATIVE FOR LEFT SIDE.

WEIGHT AND BALANCE - METRIC

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
01	LONG FIXED STEP INSTALLATION	3.6	1935	6968	1057	3804

WEIGHT AND BALANCE - STANDARD

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
01	LONG FIXED STEP INSTALLATION	8.0	76.2	609.6	41.6	332.8

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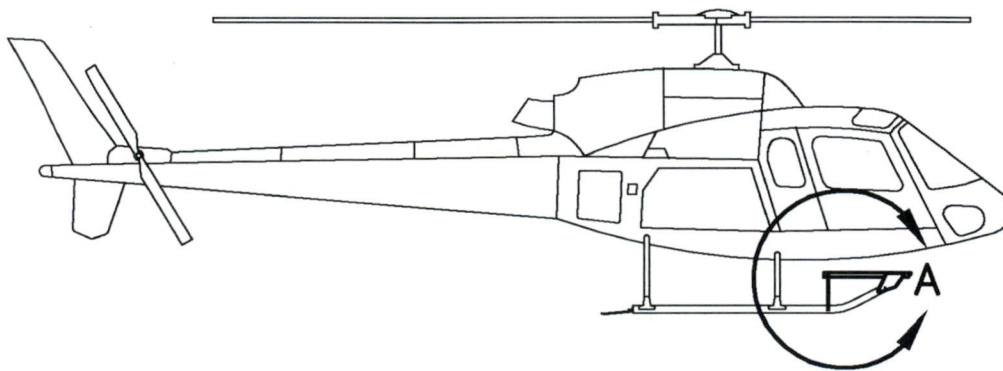
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DRAWN: JEFF CLARKE	20 OCT 2008
CHECKED: E. BURGOIN	
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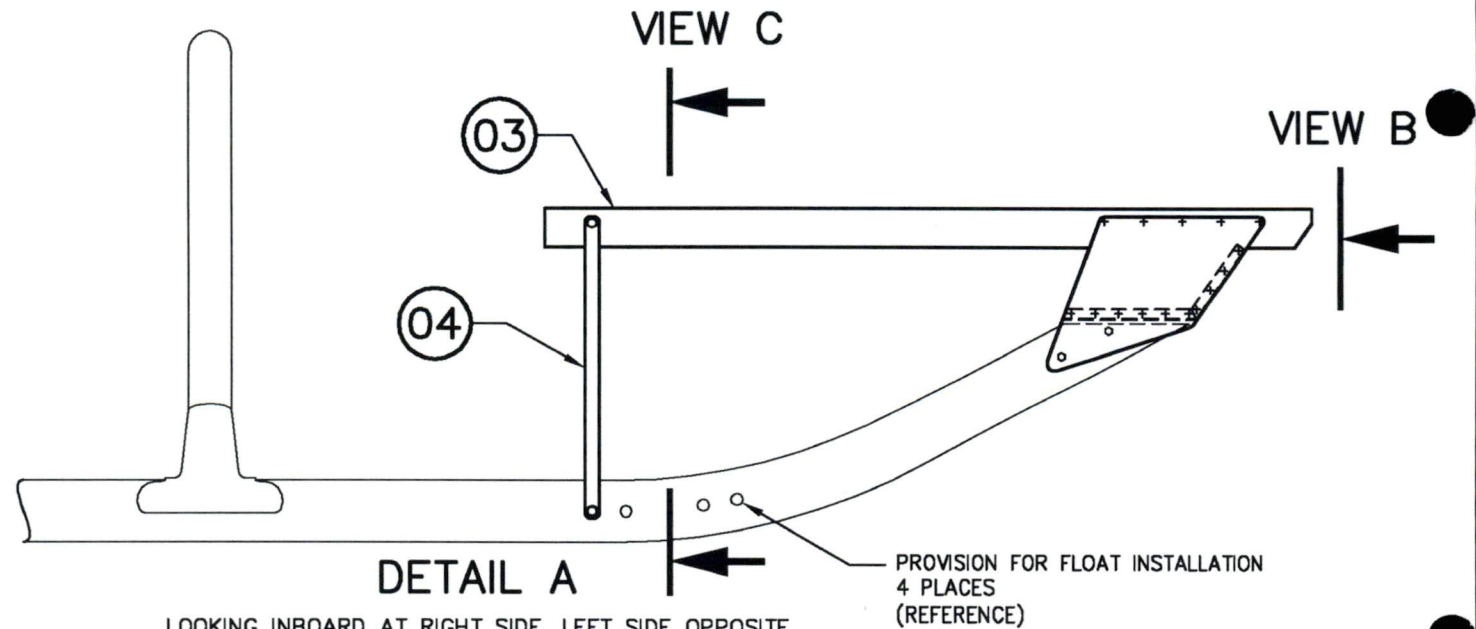
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EUROCOPTER AS350 & AS355 SERIES CABIN STEP INSTALLATION LONG FIXED STEP INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	
SHEET 2 OF 2	A4	82705	0	



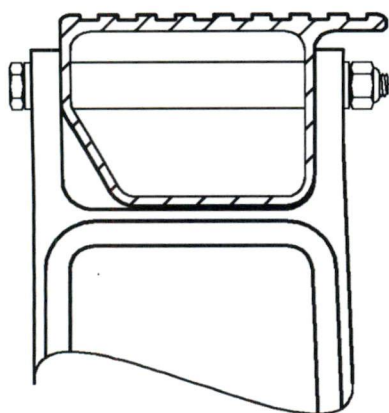
- 01 INSTALLATION
02 INSTALLATION



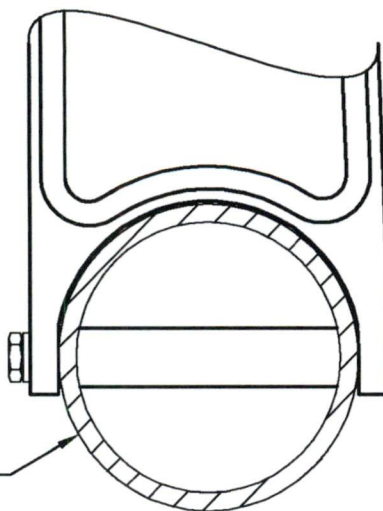
2	2	MS21044N3	NUT
4	4	AN960-10	WASHER
2	2	AN3-36A	BOLT
2	2	MS21044N4	NUT
4	4	AN960-416	WASHER
1	1	AN4-36A	BOLT
1	1	AN4-42A	BOLT
1	1	82732-02	05 BUSHING
1	1	82732-01	04 BRACKET
1		82714-02	03 STEP ASSEMBLY (LEFT)
	1	82714-01	03 STEP ASSEMBLY (RIGHT)
		82706-02	02 INSTALLATION (RIGHT SIDE)
		82706-01	01 INSTALLATION (RIGHT SIDE)
01	01	PART NO.	ITEM DESCRIPTION
QTY	QTY	LIST OF MATERIALS	

APPROVALS	DATE
DRAWN: JEFF CLARKE	16 JULY 2009
CHECKED: E. BURGOIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON:	
DECIMALS	ANGLES
X.XXX ±0.010	±1/2°
X.XX ±0.03	
X.X ±0.1	

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EUROCOPTER AS350 & AS355 SERIES CABIN STEP INSTALLATION SHORT FIXED STEP INSTALLATION			
NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.
SHEET 1 OF 3	A4	82706	0



AN4-36A BOLT
AN960-416 WASHER (2)
MS21044N4 NUT



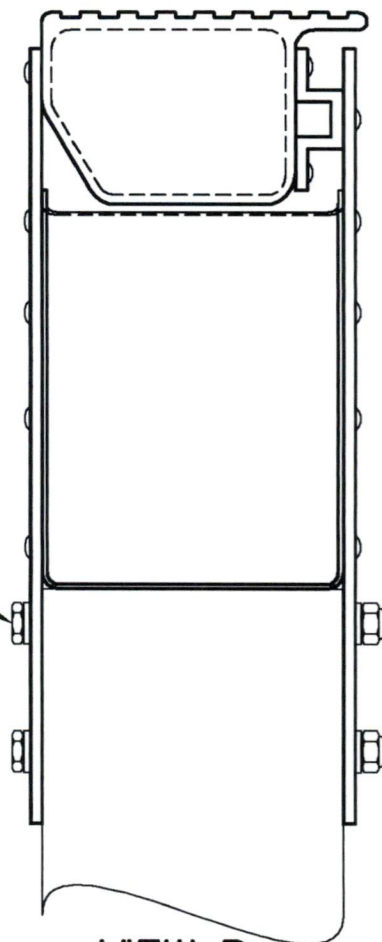
SKID TUBE
(REF)

VIEW C

LOOKING AFT
THROUGH STEP AND SKID TUBE
(BRACKET IS REVERSED ON LEFT SIDE)

REMOVE EXISTING BOLT, NUT AND PLUGS
AN4-42A BOLT
AN960-416 WASHER (2)
82732-02 BUSHING (ITEM 05)
MS21044N4 NUT
LOCATE ON AFT HOLE FOR FLOAT PROVISIONS

AN3-36A BOLT
AN960-10 WASHER (2)
MS21044N3 NUT
2 PLACES



VIEW B

LOOKING AFT

APPROVALS	DATE
DRAWN: JEFF CLARKE	16 JULY 2009
CHECKED: E. BURGOIN	

UNLESS OTHERWISE SPECIFIED
DIMENSIONS ARE IN INCHES.
TOLERANCES ON:
DECIMALS ANGLES
X.XXX ± 0.010 $\pm 1/2^\circ$
X.XX ± 0.03
X.X ± 0.1

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EUROCOPTER AS350 & AS355 SERIES CABIN STEP INSTALLATION SHORT FIXED STEP INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	
SHEET 2 OF 3	A4	82706	0	

REV.	DESCRIPTION OF CHANGE	INITIALS	DATE
0			

NOTES

1. REMOVE EXISTING STEP CAP FROM END OF SKID TUBE. FILL VOID WITH 2 PART POLYURETHANE FOAM.
REMOVE EUROCOPTER "VERTICAL STEP" IF FITTED. PLUG HOLES IN SKID TUBE WITH CHERRY BLIND RIVETS.
2. TORQUE AN3 BOLTS TO 20 - 25 INCH-POUNDS.
TORQUE AN4 BOLTS TO 50 - 70 INCH-POUNDS.
3. THIS INSTALLATION IS COMPATIBLE WITH ALL AERO DESIGN LTD. LOW OR HIGH MOUNTED QUICK RELEASE CARGO BASKET INSTALLATIONS.
4. THIS INSTALLATION MAY BE APPLIED TO THE RIGHT AND/OR LEFT SIDES. WEIGHT AND BALANCE IS GIVEN FOR RIGHT SIDE, LATERAL ARM IS NEGATIVE FOR LEFT SIDE.

WEIGHT AND BALANCE - METRIC

ITEM	DESCRIPTION	WEIGHT (KG)	LONGITUDINAL		LATERAL	
			ARM (MM)	MOMENT (KG-MM)	ARM (MM)	MOMENT (KG-MM)
01	SHORT STEP INSTALLATION	3.0	1755	5265	1000	3000

WEIGHT AND BALANCE - STANDARD

ITEM	DESCRIPTION	WEIGHT (LB)	LONGITUDINAL		LATERAL	
			ARM (IN)	MOMENT (LB-IN)	ARM (IN)	MOMENT (LB-IN)
01	SHORT STEP INSTALLATION	6.6	69.1	456.1	39.4	260.0

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APPROVALS		DATE
DRAWN:	JEFF CLARKE	16 JULY 2009
CHECKED:	E. BURGOIN	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES ON: DECIMALS ANGLES X.XXX ±0.010 ±1/2" X.XX ±0.03 X.X ±0.1		

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EUROCOPTER AS350 & AS355 SERIES CABIN STEP INSTALLATION SHORT FIXED STEP INSTALLATION

NOT TO SCALE	DWG. SIZE	DWG. NO.	REV.	
SHEET 3 OF 3	A4	82706	0	

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.91

EUROCOPTER AS350 & AS355 SERIES QUICK RELEASE MAINTENANCE STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Maintenance Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-11, Revision 0, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 1
Date: 23 July, 2009

AERO Design Ltd.
Engineering Consultants

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7
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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0			Original Issue
1			

LIST OF EFFECTIVE PAGES

List of Revisions

 Revision 0 (Original Issue)
 Revision 1

 20 October, 2008
 23 July, 2009

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	1
Revision Record/List of Effective Pages	2	1
Table of Contents	3	0
00-00-00	4-5	0
04-00-00	6	1
05-00-00	7-9	0
25-50-00	10-12	0

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CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Maintenance Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness
LH - Left Hand
RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Maintenance Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

High Mounted Quick Release Provisions:

The Quick Release Maintenance Step must be installed in the lower (stowed) position prior to installation of the AERO Design Ltd. Cargo Baskets in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION

The Quick Release Maintenance Step installation consists of a step assembly which is attached to quick release mounting provisions installed on the helicopter. These mounting provisions are capable of mounting various equipment including cargo baskets.

The step itself consists of an aluminum extrusion attached to brackets on the ends with fittings that lock into the quick release mechanism.

Two positions are provided: upper for use in maintenance activities and lower for stowing under a cargo basket.

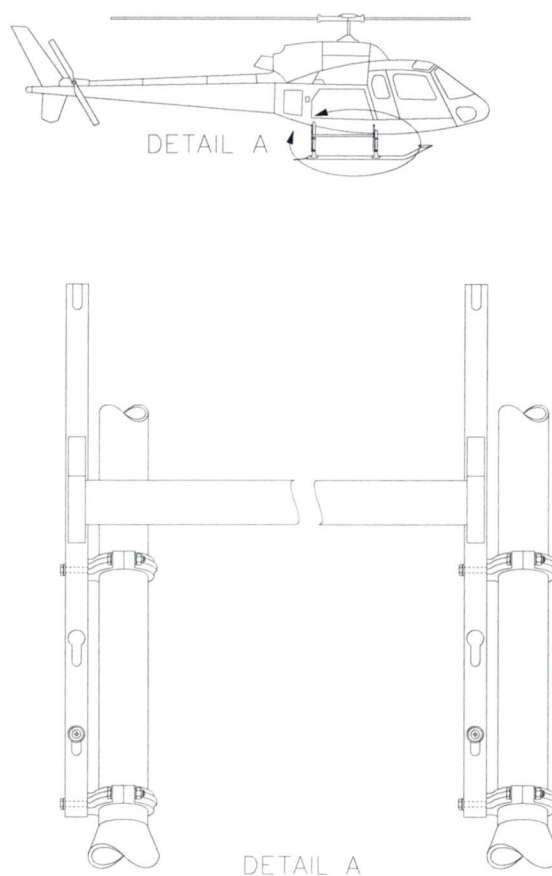


Figure 1 – AS350 Quick Release Maintenance Step Installation
(High Installation shown, Low Installation similar)

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Maintenance Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

Refer to ICA764.90 for inspection requirements for the Quick Release Mounting Provisions not included below.

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Maintenance Step.

Daily Inspection

1. Inspection Area: Step
 - a) Inspect the step attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.

100 Hour or Annual Inspection

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for inspection of mounting provisions.

1. Inspection Area: Step
 - a) Visually inspect welds attaching end brackets to step extrusion for cracks, corrosion or other damage.
 - b) Visually inspect step for damage.
 - c) Visually inspect lugs attaching the step to the beams for security and damage.

Special Inspections

1. Following a hard landing inspect the Quick Release Maintenance Step installation in accordance with the 100 hour or annual inspection listed above.
2. Any joints using a helical thread insert (Helicoil) shall be inspected on assembly in accordance with the procedure for checking self locking nuts and screws specified in the Eurocopter Standard Practices Manual, Section 20.02.05.601

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for further limits and repair instructions.

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Step Assembly

Part	Type of Damage	Max. Allowable	Repair
Step End Bracket	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Bent Lugs	None	N/A
Centre Step Section	Corrosion	2" x 2" x 0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 1" long	Blend up to 0.010" deep with scotchbrite.
	Cracks / Dents	None	N/A
	Permanent Deflection of Step	0.25" max at middle of step	None

2. Steel Beams

Part	Type of Damage	Max. Allowable	Repair
Steel Beam	Corrosion	0.030" deep	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (Outboard face)	0.030" deep x 0.125" wide	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (all other sides)	0.060" deep x 0.125" wide	Blend up to 0.060" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Elongation of Keyway	See figure 3	None
	Widening of slots	27/64" (0.422) diameter (check with a 27/64" drill)	None



Figure 2 – Critical Keyway dimensions (Low Beams)

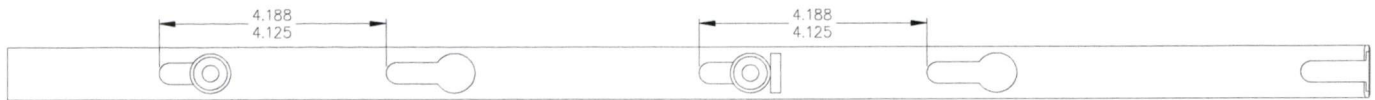


Figure 3 – Critical Keyway dimensions (High Beams)

3. Step Welds

Cracks up to 0.25" long may be repaired as follows:

- a) Clean area of paint.
- b) Grind away weld in area of crack.
- c) T.I.G. weld per MIL-STD-2219 Class "C" using ER4043 filler rod. Do not grind flush.
- d) Touch up paint as noted in section 5-3.

4. Helical Thread Inserts

Helical thread inserts (Helicoils) found to be damaged shall be repaired in accordance with the Eurocopter Standard Practices Manual, Section 20.03.04.404.

Part numbers:

1/4-28 insert: 3591-4CN375

3/8-24 insert: 3591-6CN563

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Quick Release Maintenance Step Installation may be applied to the right and/or left side of the helicopter. Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for installation, inspection, repair and removal instructions for the mounting provisions.

25-1 STEP INSTALLATION

Refer to Figure 4.

1. Set upper attachment into upper keyway in forward and aft beams.
2. Lift step until lower attachment fitting hits stop. Push fitting into keyway and slide step down until locked.

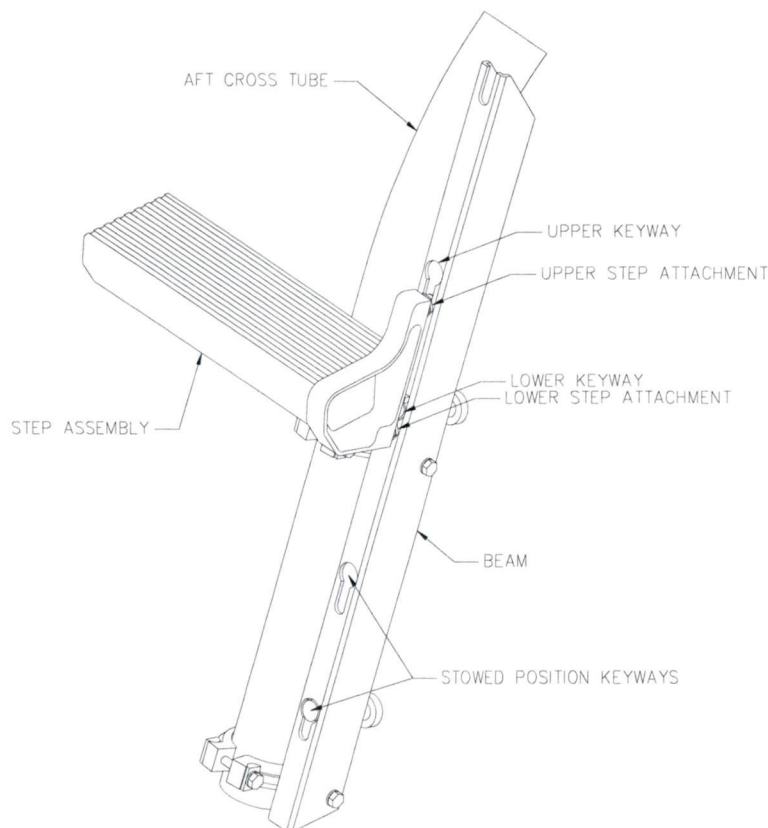


Figure 4 – Step Attachment
(High Installation shown, Low Installation similar)

25-2 STEP REMOVAL

Refer to Figure 4.

1. Pull knob at bottom end of forward beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
2. Pull knob at bottom end of aft beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.

3. Lift step until upper attachments are out of keyways on both beams and remove from helicopter.

25-3 WEIGHT AND BALANCE

Difference weight and balance configurations are required for the pilot. The first is the installation of Provisions only. The second is Provisions and Step in the upper position. The third is Provisions and step in the lower position (High Configuration only). These configurations are required because the step may be removed/installed in the field by the pilot.

Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
<i>Upper Position (High config.)</i>						
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	38.9	249.0
82701-01	Step Installation	16.4	135.6	2223.4	37.6	617.3
<i>Lower Position (Stowed, High config.)</i>						
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	41.7	266.9
82701-01	Step Installation	16.4	135.6	2223.4	38.7	635.2
<i>Low Configuration</i>						
78601-01	Low Provisions Installation	7.0	135.4	947.9	37.6	263.5
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	39.1	250.2
82702-01	Step Installation	13.4	135.6	1816.4	38.3	513.7

Metric

P/N	Description	Weight	Longitudinal		Lateral	
			arm	moment	arm	moment
	<i>Upper Position (High config.)</i>	kg	mm	mm-kg	mm	mm-kg
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	988.0	2865.2
82701-01	Step Installation	7.4	3441.3	25465.7	956.1	7075.0
<i>Lower Position (Stowed, High config.)</i>						
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	1059.0	3071.1
82701-01	Step Installation	7.4	3441.3	25465.7	983.9	7280.9
<i>Low Configuration</i>						
78601-01	Low Provisions Installation	3.2	3439.6	11006.7	955.0	3056.1
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	993.1	2880.1
82702-01	Step Installation	6.1	3440.4	20986.5	973.1	5936.2

Note: Lateral arms are given for right side installation. For installation on left side, lateral arms are negative.

25-4 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.92

EUROCOPTER AS350 & AS355 SERIES FIXED CABIN STEPS

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Fixed Cabin Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-13, Revision 2, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 1
Date: 23 July 2009

AERO Design Ltd.
Engineering Consultants

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7
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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0	20 October 2008		Original Issue
1	23 July 2009		

LIST OF EFFECTIVE PAGES

List of Revisions

 Revision 0 (Original Issue)
 Revision 1

 20 October 2008
 23 July 2009

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	1
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04-00-00	6	1
05-00-00	7-8	1
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CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Fixed Cabin Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness
LH - Left Hand
RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Fixed Cabin Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

The Long Fixed Cabin Step (82705-01/-02) is NOT compatible with the AERO Design Ltd. Long Cargo Basket in the High Mounted or Low Mounted configuration installed in accordance with STC SH08-16 (drawing 78401).

The Short Fixed Cabin Step (82706-01/-02) is compatible with all AERO Design Ltd. Cargo Baskets, in both High Mounted and Low Mounted configurations installed in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION

The Fixed Cabin Step installation consists of a step assembly which is attached to the forward end of the skid tube, running aft to the cross tube (long configuration) or a bracket (short configuration). The two configurations are provided to accommodate AERO Design Ltd. Quick Release Cargo Baskets.

The step itself consists of an aluminum extrusion attached to an adjustable bracket on the aft end, and a sheet metal assembly that attaches to the forward end of the skid tube.

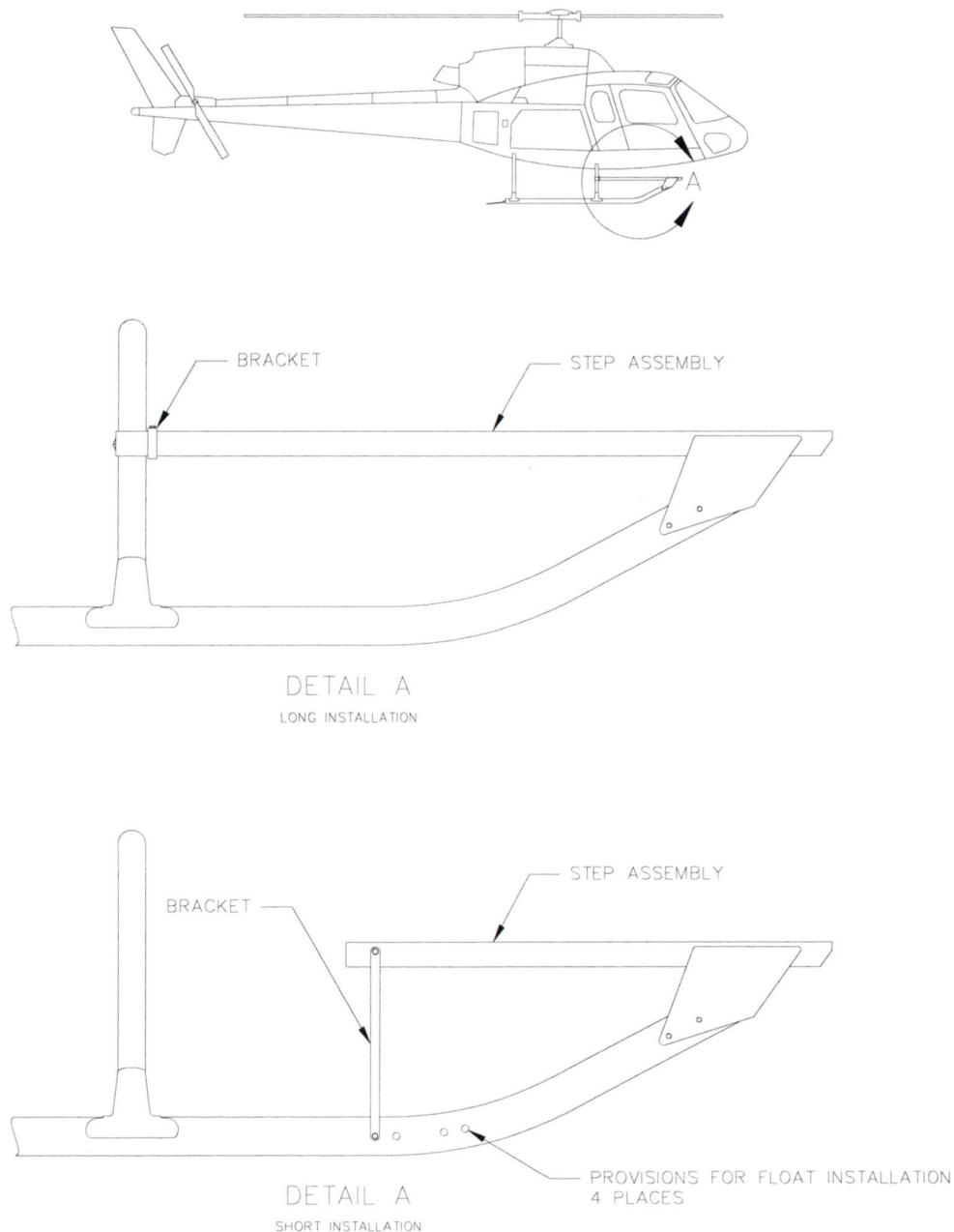


Figure 1 – AS350 Fixed Cabin Step Installation

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

Transport Canada

The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister.

FAA

The Airworthiness Limitations section is FAA approved and specifies maintenance required under Sections 43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

No additional airworthiness limitations have been imposed due the installation of the Fixed Cabin Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Fixed Cabin Step.

Daily Inspection

1. Inspection Area: Step
 - a) Long step only: Inspect the clamp attaching the aft bracket to the forward cross tube for condition and security.
 - b) Long step only: Inspect the aft step attachment bracket to the forward cross-tube for condition and security.
 - c) Short step only: Inspect bracket attaching aft end of step to skid tube for condition and security.
 - d) Inspect the forward step attachment sheet metal bracket for condition and security.

100 Hour or Annual Inspection

1. Inspection Area: Step
 - a) Visually inspect all mounting hardware for condition and security.
 - b) Visually inspect step, mounting brackets, and clamp for condition and security.
 - c) Long step only: Check step for slippage at the clamp on the forward cross tube. Step should be parallel to the ground (+/- 0.25").

Special Inspections

1. Following a hard landing inspect the Fixed Cabin Step installation in accordance with the 100 hour or annual inspection listed above.
2. Any joints using a helical thread insert (Helicoil) shall be inspected on assembly in accordance with the procedure for checking self locking nuts and screws specified in the Eurocopter Standard Practices Manual, Section 20.02.05.601

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Step Assembly

Part	Type of Damage	Max. Allowable	Repair
Brackets, Clamp	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Bent Lugs	None	N/A
Step Section	Corrosion	2" x 2" x 0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 1" long	Blend up to 0.010" deep with scotchbrite.
	Cracks / Dents	None	N/A
	Permanent Deflection of Step	0.25" max at middle of step	None

2. Helical Thread Inserts

Helical thread inserts (Helicoils) found to be damaged shall be repaired in accordance with the Eurocopter Standard Practices Manual, Section 20.03.04.404.

Part numbers:

¼-28 insert: 3591-4CN375

5-3 PROTECTIVE TREATMENT INFORMATION**1. Step Assembly**

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

2. Brackets / Clamps

The brackets and clamps are supplied painted white. If the paint is damaged, touch up with white polyurethane paint.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Fixed Cabin Step Installation may be applied to the right and/or left side of the helicopter.

25-1 LONG STEP INSTALLATION

Refer to Figure 2 and 3.

1. Attach clamp 78620-01 to aft bracket 82721-01 (right) or 82721-02 (left) with AN4-5A Bolt and AN960-516 Washer. Torque bolt to 30-40 in-lbs. Slide bracket with clamp onto aft end of step.
2. Locate forward end of step assembly on skid tube. Install AN3-36A Bolt, AN960-10 Washers, and MS21044N3 Nut into existing holes in forward end of skid tube.

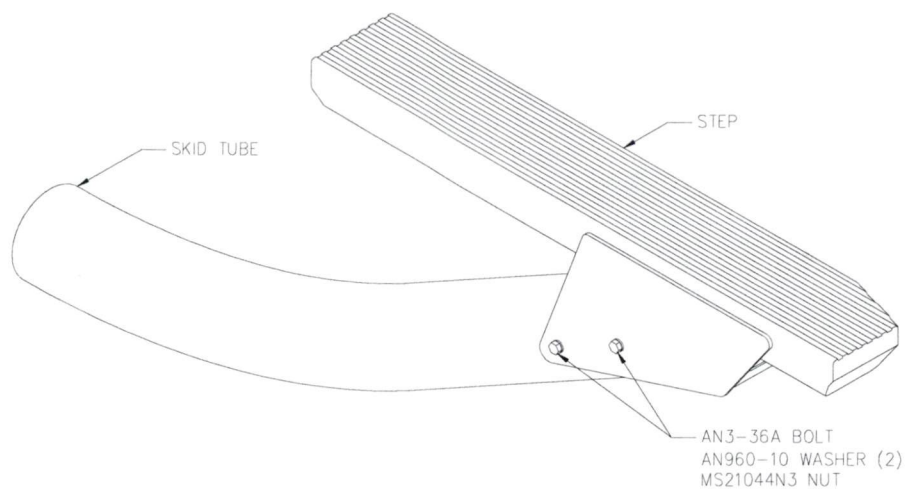


Figure 2 – Forward Step Attachment

3. Slide aft bracket along step until clamp can be attached to forward cross-tube. Bracket can be opened with a flat head screwdriver if necessary.

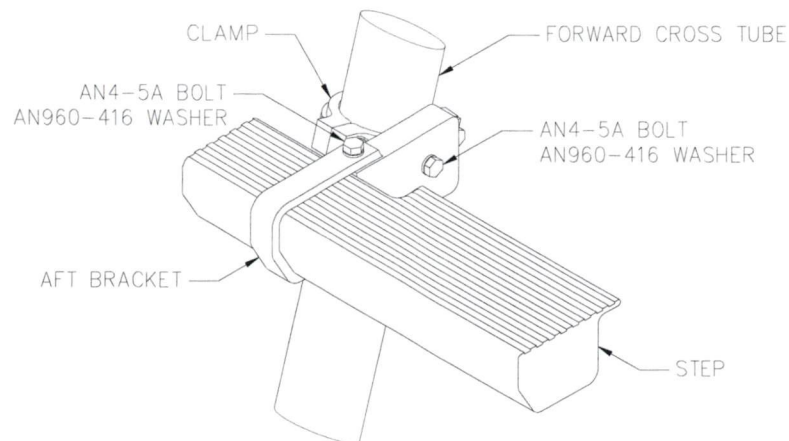


Figure 3 – Long Step Aft Attachment

4. Tighten clamp brackets to prevent the clamp from slipping on the cross tube.
5. Level the step parallel to the ground (+/- 0.25"). Nominal height is 17.5".
6. Tighten all hardware as follows:
 - AN3 Bolts: 20-25 in-lbs
 - AN4 Bolts: 50-70 in-lbs

25-2 LONG STEP REMOVAL

Refer to Figure 2 and 3.

1. Remove AN3-36A Bolts, AN960-10 Washers, and MS21044N3 Nuts attaching forward end of step to skid tube.
2. If Clamp will remain installed:
 - Remove AN4-5A Bolt and AN960-416 Washer securing Aft Bracket to Clamp. Remove Step.
- If Clamp will be removed:
 - Remove AN4 Bolts and hardware securing clamp to cross tube. Remove Step.

25-3 SHORT STEP INSTALLATION

Refer to Figure 2 and 4.

1. Remove existing bolt, nut, and cups from last float provision hole at forward end of skid tube.
2. Insert Bushing 82732-02 into hole in skid tube. Set Bracket 82732-01 over bushing, straight edge outboard. Insert AN4-42A bolt with AN960-616 washer through bracket and bushing. Install AN960-416 washer and MS21044N4 nut on bolt. Do not tighten nut.
3. Set step assembly 82714-01 (right) or 82714-02 (left) on bracket. Install AN4-36A Bolt, AN960-416 Washers, and MS21044N4 Nut through bushing in step. Do not tighten nut.
4. At the forward end of the step, install AN3-36A Bolt, AN960-10 Washers, and MS21044N3 Nut through existing holes in forward end of skid tube.
5. Tighten all hardware as follows:
 - AN3 Bolts: 20-25 in-lbs
 - AN4 Bolts: 50-70 in-lbs

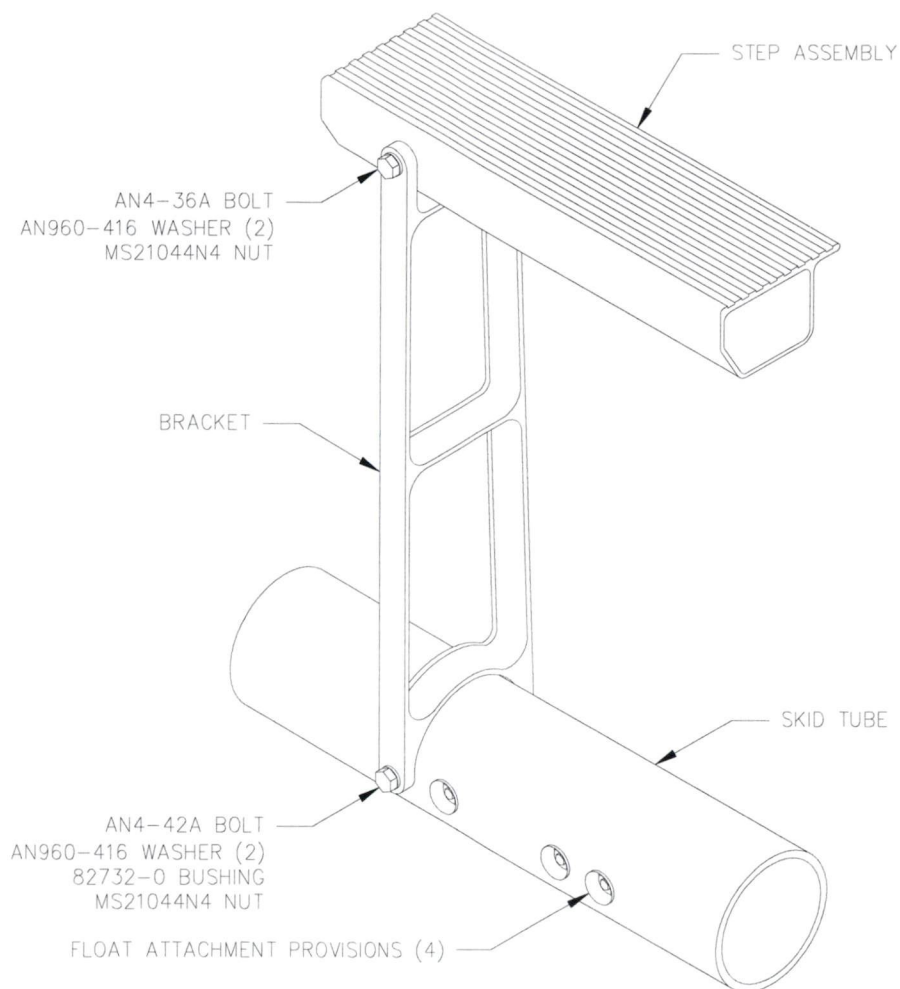


Figure 4 – Short Step Aft Attachment

25-4 SHORT STEP REMOVAL

Refer to figure 2 and 4.

1. Remove AN3-36A Bolts, AN960-10 Washers, and MS21044N3 Nuts attaching forward end of step to skid tube.
2. Remove AN4-36A Bolt, AN960-416 Washers, and MS21044N4 Nut attaching step to bracket. Remove step.
3. Remove AN4-41A Bolt, AN960-416 Washers, and MS21044N4 Nut attaching bracket to skid tube. Remove bracket and bushing from skid tube.
4. Install 22201TK050-072X Screw, 350A41-1095-20 Cup (2), 23119TK050X Washer, and ASN52320BH050N Nut in hole in skid tube. Refer to Illustrated Parts book and Maintenance Manual.

25-5 WEIGHT AND BALANCE**Standard**

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
82705-01	Long Fixed Cabin Step Installation	8.0	76.2	609.6	41.6	332.8
82706-01	Short Fixed Cabin Step Installation	6.6	69.1	456.1	39.4	260.0

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
82705-01	Long Fixed Cabin Step Installation	3.6	1935	6968	1057	3804
82705-01	Short Fixed Cabin Step Installation	3.0	1755	5265	1000	3000

Note: Lateral arms are given for right side installation. For installation on left side, lateral arms are negative.

25-6 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

Jeff Clarke

From: Jeff Clarke [jeff@aerodesign.ca]

Sent: July 28, 2009 2:45 PM

To: 'Oucharek, Greg'

Subject: C-08-0913 - AS350 Steps STC

Greg,

I have uploaded the drawings, reports, ICA and FMS into NDWL for this project. On the FMS I have left the approval stamp on the cover from the original issue since the revised sections are unapproved (weight and balance and installation/removal instructions).

I accidentally put one of the drawings as "AE-100" in NDWL, could you please change it to "installation instructions and manufacture drawings".

Thanks,

Jeff Clarke

AERO Design Ltd.

29/07/2009

AERO Design Ltd.

**ENGINEERING REPORT
ER827.01**

**QUICK RELEASE MAINTENANCE STEP INSTALLATION
FIXED CABIN STEP INSTALLATION
PEG STEP INSTALLATION**

Eurocopter AS350 & AS355 Series

Approved: E. Burgoin, P. Eng.

Prepared by: Jeff Clarke

Revision 1
Date: 28 July, 2009

AERO Design Ltd.
Engineering Consultants

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1.0 INTRODUCTION

On the Eurocopter AS350 & AS355 Series a step is required to aid access to the cabin when on high gear. Two different lengths are provided: a short step to accommodate the large Quick Release Cargo Basket installation in accordance with drawing 78401; and a long step that is compatible with medium and short cargo baskets. In the long configuration, the same clamp arrangement is used as in the Cargo Basket installation for attachment to the forward cross tube. In the short configuration, a bracket is mounted to an existing hole for mounting floats.

When the cargo basket mounting provisions are installed, a step installed in the basket mount will aid in access for maintenance of the helicopter when on the ground. In the high configuration, the step can be stowed on the beams under the baskets and carried with the helicopter.

A step located near the aft cross tube is required to access existing step provisions on the cross tube for maintenance activities on the helicopter. A peg step is attached to the aft quick release mounting provision to provide access when a quick release maintenance step is not installed.

2.0 REFERENCE

AERO Design Ltd. Drawings 82701, 82702, 82703, 82705, 82706

MIL-HDBK-5J

3.0 BASIS OF CERTIFICATION

Eurocopter AS350 & AS355 Series, TCDS H-83/ H-87:

FAR 27, Amendment 27-20, plus select sections of later Amendments (AS355NP basis of certification).

This installation:

Same as the basis of certification for each model as shown above.

4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

This installation does not impact on any current ADs.

5.0 LOADS

5.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is located external to the cabin. It cannot be reached to be occupied in flight, therefore the maneuvering loads applied are only due to the step weight itself (6.4 lbs).

$$W_{\text{step}} = 6.4 \text{ lbs}$$

Weight of step (maintenance step)

$$n_{\text{man_pos}} = 3.5$$

Limit positive maneuvering load factor (Ref: FAR 27.337)

$$n_{\text{sf}} = 1.5$$

Safety Factor (Ref: FAR 27.303)

$$n_{\text{ult_man_pos}} = n_{\text{man_pos}} \times n_{\text{sf}}$$

$$n_{\text{ult_man_pos}} = 3.5 \times 1.5 = 5.25$$

Ultimate positive maneuvering load factor

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 33.6 \text{ lbs}$$

Ultimate positive maneuvering load

5.2 Fixed Cabin Step

5.2.1 Inertia Loads

$$W_{\text{step}} = 8.0 \text{ lbs}$$

Weight of step (high mounted cabin step)

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 42 \text{ lbs}$$

Ultimate positive maneuvering load

The step is not intended to be used in flight. As such, there is no requirement for the application of maneuvering inertia loads due to a person on the step. However, the step is checked for ultimate inertia load applied by one person to allow for the possibility of use during rappel or similar operations.

$$W_{\text{person}} = 170 \text{ lbs}$$

Weight of person

$$P_{\text{ult_man_pos}} = W_{\text{person}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 892.5 \text{ lbs}$$

Ultimate positive maneuvering load applied to step by 1 person

5.2.2 Aerodynamic Loads

Drag

$$A_f := 10.2 \cdot \text{in}^2$$

Frontal Area of Step

$$V_{ne} := 155 \cdot \text{knots}$$

Never Exceed Speed of AS350/AS355/EC135
(Highest of all models)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 172.2 \cdot \text{knots}$$

Design Dive Speed

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Air Density at Sea Level

$$C_{Do} := 2.0$$

Coefficient of Drag (conservative)

$$P_{\text{drag}} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{Do}$$

$$P_{\text{drag}} = 14.2 \cdot \text{lbf}$$

Limit drag at V_d

$$n_{sf} := 1.5$$

Factor of Safety

$$P_{\text{drag_ult}} := P_{\text{drag}} \cdot n_{sf}$$

$$P_{\text{drag_ult}} = 21.3 \cdot \text{lbf}$$

Ultimate drag at V_d

Lift

$$A_{\text{lift}} := 3.4 \cdot \text{in} \cdot 73.75 \cdot \text{in}$$

$$A_{\text{lift}} = 250.7 \cdot \text{in}^2$$

Planar area of step (largest)

Coefficient of lift for round tubes relative to airflow varies from near 0 at 0°, to 0.4 at about 60°.

$$C_L := 0.4$$

Coefficient of lift (Max. for a round tube, ~60° to air flow)
(ref: Hoerner, Fig. 18)

$$P_{\text{lift}} := C_L \cdot \frac{\rho}{2} \cdot V_d^2 \cdot A_{\text{lift}}$$

$$P_{\text{lift}} = 69.9 \cdot \text{lbf}$$

Limit lift on step at V_d

$$P_{\text{lift_ult}} := P_{\text{lift}} \cdot n_{sf}$$

$$P_{\text{lift_ult}} = 104.8 \cdot \text{lbf}$$

Ultimate lift on step at V_d

5.3 Maintenance Peg Step

The Maintenance Peg Step is located on the inboard side of the aft Quick Release Mounting Provisions. The step weighs less than 1 lb. The inertia and aerodynamic loads are very small.

6.0 STRUCTURAL COMPLIANCE

6.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is similar to the Quick Release Step tested in ER800.01, and uses the same attachments. The step was tested to 1800 lbs and was 72" long. This step is not in a position to be used in flight, and is shorter than the step tested which reduces the bending moment. The Mounting Provisions on the AS350 have been tested to carry a cargo basket with 300 lbs of cargo at ultimate maneuvering load factor. The Maintenance Step installation has been considered and is satisfactory for installation.

6.2 Fixed cabin Step

The aerodynamic drag load is very small and by inspection can be carried by the step assembly and its attachments.

The aerodynamic lift generated by the step is applied similar to the down load tested below, only upward. The downward test is sufficient to demonstrate the lift load.

Long Fixed Step

A Long Fixed Step Assembly was fabricated in accordance with drawing 82713. The step was installed on a helicopter in accordance with drawing 82705. The step was loaded with 1000 lbs of lead shot (40 bags @ 25 lbs), evenly distributed over the surface of the step.

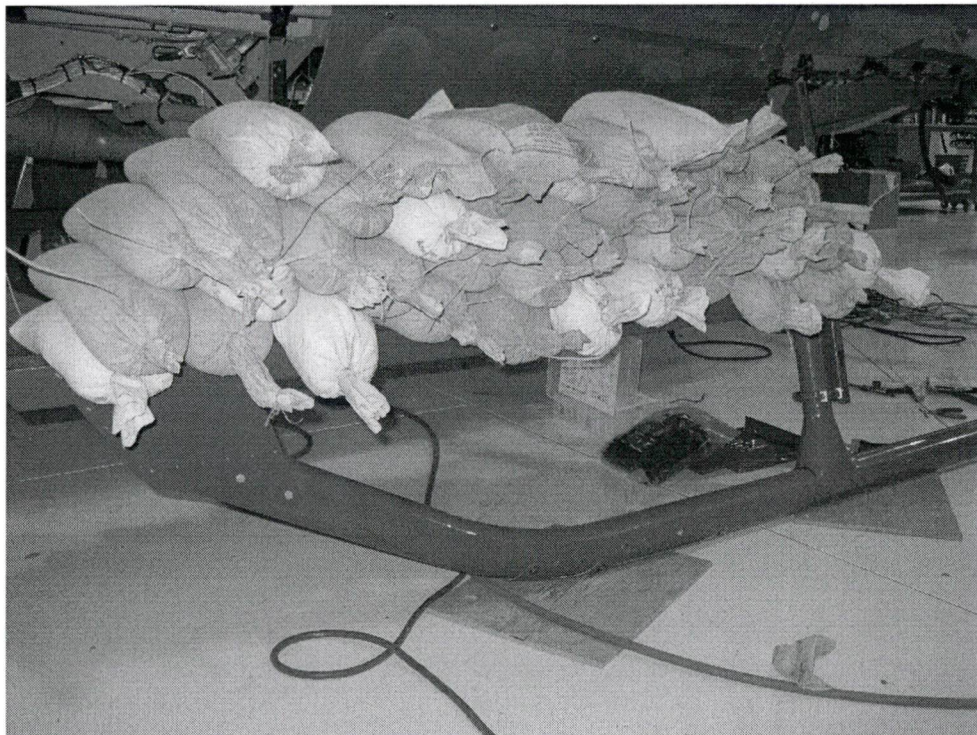


Figure 6.2.1 – Ultimate Maneuvering Load on Long Step Assembly

With the load removed there was no permanent deformation found. The clamp on the aft end did not slip down the cross tube. The long fixed cabin step is satisfactory for installation.

Short Fixed Step

A Short Fixed Assembly was fabricated in accordance with drawing 82714. The step was installed on a scrap helicopter skid tube, mounted to a pair of scrap cross tubes to prevent rotation. The step was loaded with 900 lbs (36 bags @ 25 lbs) of lead shot, evenly distributed over the surface of the step.

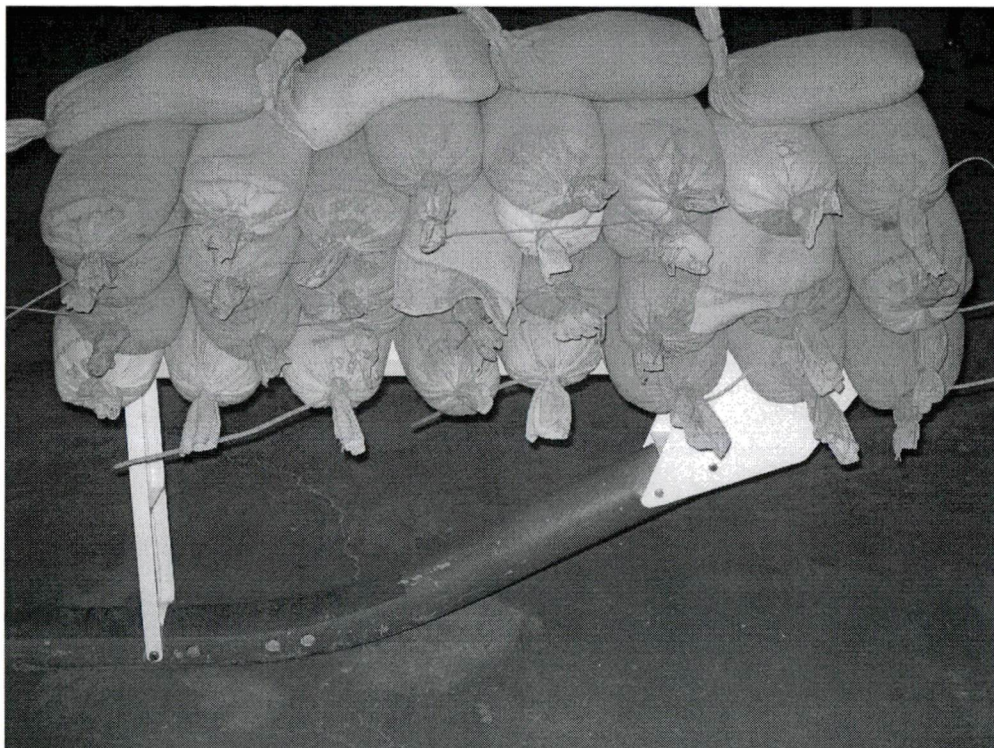


Figure 6.2.2 – Ultimate Maneuvering Load on Short Step Assembly

With the load removed there was no permanent deformation found. The short fixed cabin step is satisfactory for installation.

6.3 Maintenance Peg Step

The Maintenance Peg Step was installed on a High Mounted Quick Release Beam and the beam installed on a cross tube. The step was stood on and jumped on at the end of the step tube. There was no permanent deformation or failure. The step is satisfactory for installation.

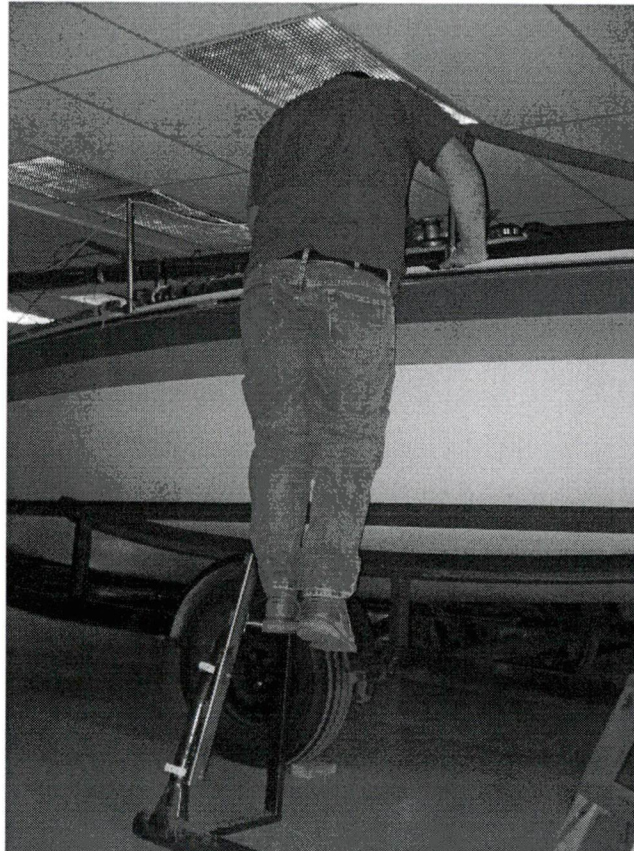


Figure 2 – Peg Step Load Test

7.0 COMPLIANCE WITH 27.251 AND 27.629

The frontal and planar area of the step is significantly smaller than the area of the cargo basket which uses the same mounting provisions (for quick release maintenance step). The step section is a closed section so it is torsionally rigid and will not allow flexing between the attachments. The conclusion that can be drawn from these properties is that the aerodynamic loading or turbulence shedding from the step will be significantly less than from the basket, and are expected to be similar to the basic unmodified helicopter.

The effects of vibration (27.251) and flutter (27.629) have been considered over the flight regime of the helicopter, and there is no effect.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.92)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82704, 82705

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.91)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
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A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A


BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

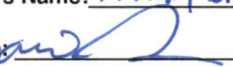
MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

<p>A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."</p>	<p>ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4</p>	<p>Supplemental ICA ref: Section 4</p>
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BLOCK 4 – Applicant Statement of Compliance

<p>The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.</p>	
<p>Applicants Signature: </p>	<p>Date: November 7, 2008</p>
<p>Applicants Name: E. Burgoin, P.Eng, DAR 290M</p>	

BLOCK 5 – Minister's Statement of Acceptability

<p>The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.</p>	
<p>Reviewer's Name: <u>MURRAY WICKENS</u> Phone # <u>403-292-4133</u></p>	<p>Email: <u>@TC.GC.CA</u> Mail Routing Symbol: <u>RACH</u></p>
<p>Signature:  Date: <u>28 MAY 09</u></p>	<p>NAPA Number _____</p>

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.91)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82701, 82702

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
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MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

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MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

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A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
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A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

BLOCK 3

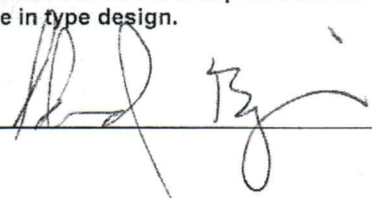
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MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

<p>A527.4 AWL - Separate Section 1 The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."</p>	<p>ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4</p>	<p>Supplemental ICA ref: Chapter 4</p>
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BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.


Applicants Signature:  Date: November 7, 2008

Applicants Name: E. Burgoin, P.Eng, DAR 290M

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: MURRAY WICKENS Phone # 403-292-4133 Email: MURRAY.WICKENS@TC.gc.ca Mail Routing Symbol: RACH

Signature:  Date: 28 MAY 09 NAPA Number

AERO Design Ltd.

**ENGINEERING REPORT
ER827.01**

**QUICK RELEASE MAINTENANCE STEP INSTALLATION
FIXED CABIN STEP INSTALLATION
PEG STEP INSTALLATION**

Eurocopter AS350 & AS355 Series

Approved: E. Burgoin, P. Eng.

Prepared by: Jeff Clarke

Revision 0
Date: 20 October, 2008

AERO Design Ltd.
Engineering Consultants

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1.0 INTRODUCTION

On the Eurocopter AS350 Series a step is required to aid access to the cabin when on high gear. The forward cross tube is located aft of the cabin door, so a step running from the forward cross tube to the forward tip of the skid tube is installed. Two different heights are provided to accommodate the large Quick Release Cargo Basket installation in accordance with drawing 78401. The same clamp arrangement is used as in the Cargo Basket installation for attachment to the forward cross tube.

When the high cargo basket mounting provisions are installed, a step installed in the basket mount will aid in access for maintenance of the helicopter when on the ground.

A step located near the aft cross tube is required to access existing step provisions on the cross tube for maintenance activities on the helicopter. A peg step is attached to the aft quick release mounting provision to provide access when a quick release maintenance step is not installed.

2.0 REFERENCE

AERO Design Ltd. Drawings 82701, 82702, 82703, 82704, 82705
MIL-HDBK-5J

3.0 BASIS OF CERTIFICATION

Eurocopter AS350 & AS355 Series, TCDS H-83/ H-87:

FAR 27, Amendment 27-20, plus select sections of later Amendments (AS355NP basis of certification).

This installation:

Same as the basis of certification for each model as shown above.

4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

This installation does not impact on any current ADs.

5.0 LOADS

5.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is located external to the cabin. It cannot be reached to be occupied in flight, therefore the maneuvering loads applied are only due to the step weight itself (6.4 lbs).

$$W_{\text{step}} = 6.4 \text{ lbs}$$

Weight of step (maintenance step)

$$n_{\text{man_pos}} = 3.5$$

Limit positive maneuvering load factor (Ref: FAR 27.337)

$$n_{\text{sf}} = 1.5$$

Safety Factor (Ref: FAR 27.303)

$$n_{\text{ult_man_pos}} = n_{\text{man_pos}} \times n_{\text{sf}}$$

$$n_{\text{ult_man_pos}} = 3.5 \times 1.5 = 5.25$$

Ultimate positive maneuvering load factor

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 33.6 \text{ lbs}$$

Ultimate positive maneuvering load

5.2 Fixed Cabin Step

5.2.1 Inertia Loads

$$W_{\text{step}} = 8.0 \text{ lbs}$$

Weight of step (high mounted cabin step)

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 42 \text{ lbs}$$

Ultimate positive maneuvering load

The step is not intended to be used in flight. As such, there is no requirement for the application of maneuvering inertia loads due to a person on the step. However, the step is checked for ultimate inertia load applied by one person to allow for the possibility of use during rappel or similar operations.

$$W_{\text{person}} = 170 \text{ lbs}$$

Weight of person

$$P_{\text{ult_man_pos}} = W_{\text{person}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 892.5 \text{ lbs}$$

Ultimate positive maneuvering load applied to step by 1 person

5.2.2 Aerodynamic Loads

Drag

$$A_f := 10.2 \cdot \text{in}^2$$

Frontal Area of Step

$$V_{ne} := 155 \cdot \text{knots}$$

Never Exceed Speed of AS350/AS355/EC135
(Highest of all models)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 172.2 \cdot \text{knots}$$

Design Dive Speed

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Air Density at Sea Level

$$C_{Do} := 2.0$$

Coefficient of Drag (conservative)

$$P_{\text{drag}} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{Do}$$

$$P_{\text{drag}} = 14.2 \cdot \text{lbf}$$

Limit drag at V_d

$$n_{sf} := 1.5$$

Factor of Safety

$$P_{\text{drag_ult}} := P_{\text{drag}} \cdot n_{sf}$$

$$P_{\text{drag_ult}} = 21.3 \cdot \text{lbf}$$

Ultimate drag at V_d

Lift

$$A_{\text{lift}} := 3.4 \cdot \text{in} \cdot 73.75 \cdot \text{in}$$

$$A_{\text{lift}} = 250.7 \cdot \text{in}^2$$

Planar area of step (largest)

Coefficient of lift for round tubes relative to airflow varies from near 0 at 0° , to 0.4 at about 60° .

$$C_L := 0.4$$

Coefficient of lift (Max. for a round tube, $\sim 60^\circ$ to air flow)
(ref: Hoerner, Fig. 18)

$$P_{\text{lift}} := C_L \cdot \frac{\rho}{2} \cdot V_d^2 \cdot A_{\text{lift}}$$

$$P_{\text{lift}} = 69.9 \cdot \text{lbf}$$

Limit lift on step at V_d

$$P_{\text{lift_ult}} := P_{\text{lift}} \cdot n_{sf}$$

$$P_{\text{lift_ult}} = 104.8 \cdot \text{lbf}$$

Ultimate lift on step at V_d

5.3 Maintenance Peg Step

The Maintenance Peg Step is located on the inboard side of the aft Quick Release Mounting Provisions. The step weighs less than 1 lb. The inertia and aerodynamic loads are very small.

6.0 STRUCTURAL COMPLIANCE

6.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is similar to the Quick Release Step tested in ER800.01, and uses the same attachments. The step was tested to 1800 lbs and was 72" long. This step is not in a position to be used in flight, and is shorter than the step tested which reduces the bending moment. The Mounting Provisions on the AS350 have been tested to carry a cargo basket with 300 lbs of cargo at ultimate maneuvering load factor. The Maintenance Step installation has been considered and is satisfactory for installation.

6.2 Fixed cabin Step

The aerodynamic drag load is very small and by inspection can be carried by the step assembly and its attachments.

The aerodynamic lift generated by the step is applied similar to the down load tested below, only upward. The downward test is sufficient to demonstrate the lift load.

A high mounted Fixed Step Assembly was fabricated in accordance with drawing 82713. The step was installed on a helicopter in accordance with drawing 82705.

The step was loaded with 1000 lbs of lead shot (40 bags @ 25 lbs), evenly distributed over the surface of the step.

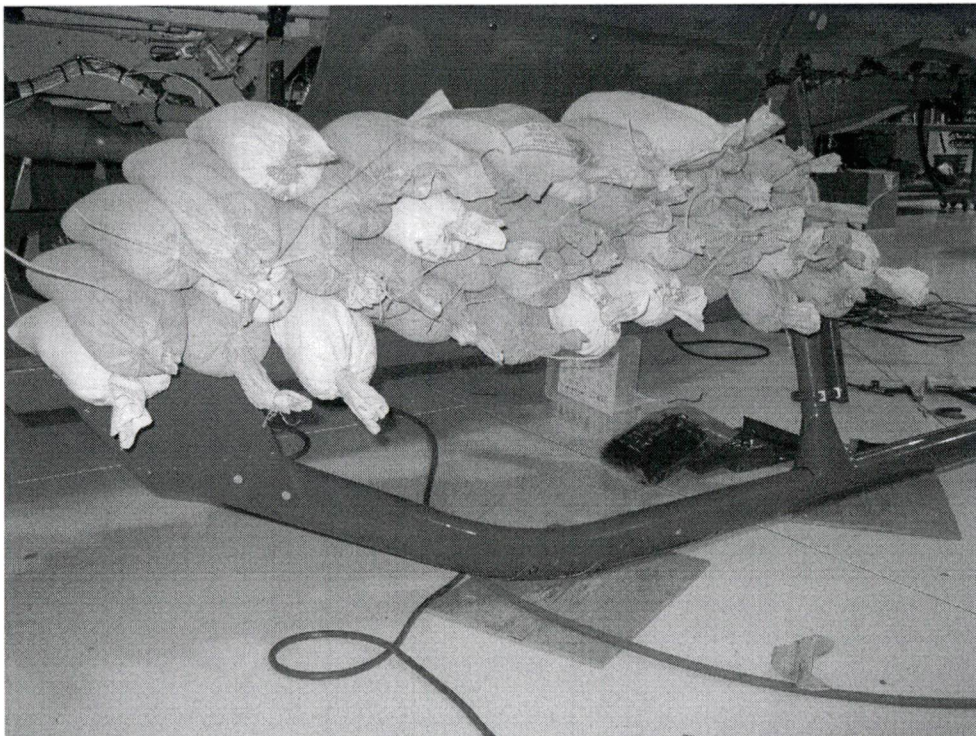


Figure 1 – Ultimate Maneuvering Load on Step Assembly

With the load removed there was no permanent deformation found. The clamp on the aft end did not slip down the cross tube. The fixed cabin step is satisfactory for installation.

6.3 Maintenance Peg Step

The Maintenance Peg Step was installed on a High Mounted Quick Release Beam and the beam installed on a cross tube. The step was stood on and jumped on at the end of the step tube. There was no permanent deformation or failure. The step is satisfactory for installation.

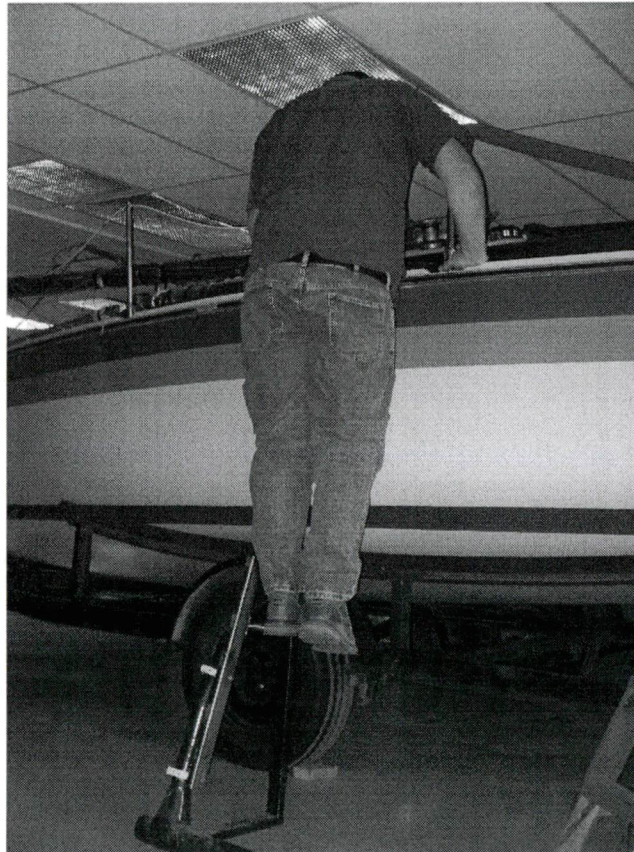


Figure 2 – Peg Step Load Test

7.0 COMPLIANCE WITH 27.251 AND 27.629

The frontal and planar area of the step is significantly smaller than the area of the cargo basket which uses the same mounting provisions. The step section is a closed section so it is torsionally rigid and will not allow flexing between the attachments. The conclusion that can be drawn from these properties is that the aerodynamic loading or turbulence shedding from the step will be significantly less than from the basket, and are expected to be similar to the basic unmodified helicopter.

The effects of vibration (27.251) and flutter (27.629) have been considered over the flight regime of the helicopter, and there is no effect.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.92)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82704, 82705

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.91)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
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A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

BLOCK 3

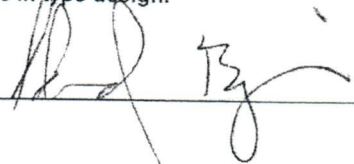
Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

<p>A527.4 AWL - Separate Section 1</p> <p>The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."</p>	<p>ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 4</p>	<p>Supplemental ICA ref: Section 4</p>
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BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.


Applicants Signature:  Date: November 7, 2008

Applicants Name: E. Burgoin, P.Eng, DAR 290M

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: MURRAY WICKENS Phone # 403-292-4133 Email: OTC.GC.CA Mail Routing Symbol: RACH

Signature:  Date: 28 May 09 NAPA Number

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 527

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.91)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82701, 82702

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.91)
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MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

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A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

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A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
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BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

A527.4 AWL - Separate Section 1

The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."

ICA ref: Eurocopter AS350/AS355
Maintenance Manual, Chapter 4

Supplemental ICA ref: Chapter 4

BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature: _____

Date: November 7, 2008

Applicants Name: E. Burgoin, P.Eng, DAR 290M

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: MURRAY WICKENS Phone # 403-292-4133

Email: MURRAY.WICKENS@C.R.C.A. Mail Routing Symbol: RACH

Signature: _____ Date: 28 MAY 09

NAPA Number _____

Jeff Clarke

From: Oucharek, Greg [greg.oucharek@tc.gc.ca]

Sent: May 28, 2009 10:34 AM

To: Jeff Clarke

Cc: ted@aerodesign.ca; Wickens, Murray

Subject: RE: C-09-0496 Fixed Cabin Step

Jeff,

Comments as follows:

ICA 827.91

- YES
- Is SH08-16 a Required Installation acting as provisions for the step? Question stems from Inspection/R&R info for the saddle clamps and steel beams ... is this contained in the ICA with SH08-16, and if so the installer should be directed there (noted info in 5-2 related to beams);
 - Chapter 4 - Language is not completely consistent with policy statement and should be revised to reflect; ✓
 - Chapter 5 - Inspection schedule should reflect 100 hrs not 300; ✓
 - Chapter 25 - Intro paragraph should read "... model of helicopter for installation, inspection, repair and removal instructions ..."

ICA 827.92

- check 200B ICA →
- Chapter 4 - Language is not completely consistent with policy statement and should be revised to reflect; ✓
 - Chapter 5 - Inspection schedule should reflect 100 hrs not 300; ✓
 - General question ... is the clamp the same one used with a basket mount provision? YES

A general question related to both documents ... if I recall correctly, the mount provisions make extensive use of heli-coil inserts. You have specified fastener torques that I expect are consistent with the insert capacity, but what are the "in-service" criteria to ensure they are still properly seated, maintain locking capability, repair if pulled out? These are special fasteners that I don't expect are covered by the OEM Standard Practice Manual (I may be wrong here and invite you to prove me so).

With these items sorted out, documents will be found acceptable.

Regards,

Greg

Para 20.02.05.60101 → checking self locking screws/nuts

General Maintenance and Repair Procedures.

20.03.04.40401

Standard Repairs

→ Repairing torn threads w/ threaded inserts

→ includes removal + install instruction

MIL-I-8846
MIL-N-25027

NASM 8846

~~MA 1565~~

NASM 2629 ?

28/05/2009

JOINING

Checking self-locking nuts & screws

R

1 CHECKING PROCEDURE

1.1 General

This card defines criteria for using and reusing self locking screws and nuts.

1.2 Geometrical check

On assembly, threaded fasteners must not present visible dimensional distortions or abrasions liable to reduce the effectiveness of the threads.

The threads must permit smooth tightening up to the locking device.

Discard any items that fail to meet these requirements.

1.3 Functional check

When tightening the nut or screw, apply a torque load equal to the opposing torque of the locking component between the point where one complete thread protrudes from the nut and the point where an axial load is applied on the fastened components (i.e. the beginning of the clamping action).

The graph in FIGURE 1 indicates :

- (1) - Locking torque
- (2) - Nominal thread diameter
- (3) - Minimum locking torque
- (4) - Maximum locking torque.

NOTE : If graphited or similar grease is specified for lubrication of threaded fasteners, reduce the maximum locking torque by 25 %.

REPLACEMENT OF MISCELLANEOUS COMPONENTS

Repairing torn threads with threaded inserts

1 PROCEDURE

R

CAUTION - THIS REPAIR METHOD REQUIRES PRIOR AGREEMENT OF THE MANUFACTURER, ON VITAL PARTS.

1.1 General

This method consists in replacing the damaged threads with a threaded insert. As an advantage, it restores the original size and tolerances of the threads in a simple and inexpensive way. As a result, oversize parts such as bolts, studs are avoided and the TBO of the repaired assemblies is extended.

1.2 Description

1.2.1 Free threaded insert (Fig. 1 - DETAIL A)

The threaded insert which has the appearance of a stainless steel or cadmium plated phosphorous bronze wire toothed spring is of rhomboidal cross-section and forms an external thread for fitting in the part and an internal thread for fitting the screw.

Inserted by its tang (1) into a tapped hole, the threaded insert has a first coil of smaller diameter (2). A notch (3) in this coil enables the tang to be broken in a through hole.

There are two types of threaded inserts :

- Standard insert, as described above. (A1)
- Self-locking insert (A2), which includes one or more distorted coils (4), which are usually located at mid thread height, ensuring double locking, on both tapped thread side and screw side. This type of thread is coloured red to distinguish it visually from the standard threads.

1.2.2 Fitted threaded insert (Fig. 1 - DETAIL B)

The threaded insert may be fitted in a through hole (B1) or in a blind hole (B2).

Definition of a fitted threaded insert : (Key of item letters)

- E : Basic length (the basic length of a threaded insert corresponds to the minimum effective tapped length or to the minimum thickness of the part. It is expressed in nominal diameter multiples D).
- L : Threaded insert fitted length.
- R : Maximum length of the screw engaged in the thread (tang not broken - as for a blind hole).
- S : Hole depth (different if the tap includes a 2 or 4 pitch inlet chamfer).

ALL

20.03.04.

- N : Minimum usable length (for self-locking threads)

- T : Maximum tapped diameter.
- P : Portion of threads set back by 0.25 to 0.50 pitch from joint face (from blind hole end or open hole).
- a : Joint face.
- b : Driving tang broken.
- c : Tap without input.
- d : Tap with.

R
R
R
R
R

1.2.3 Codes

- Threaded insert type code

Code	- (Hyphen)	STANDARD type (without locking)
	F	SELF-LOCKING type

- Basic length code

Basic length	0.5D	0.75 D	1 D	1.5 D	2 D	2.5 D	3 D
Code	050	075	100	150	200	250	300

- Basic length of a threaded insert corresponds to the minimum effective tapped length or to the minimum thickness of the part. It is expressed in "D" nominal diameter multiples.

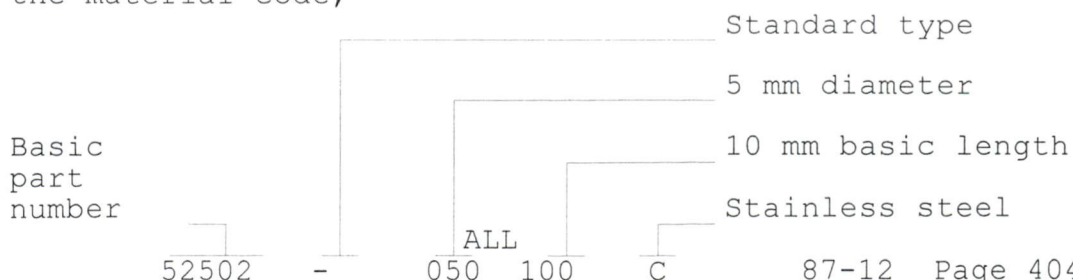
R
R
R

- Material code

Code	C	Stainless steel
	B	Cadmium plated phosphorous bronze

- Coded Part Number :
 The threaded insert coded part number comprises the basic part number 52502 followed by :
 - . the type code,
 - . the nominal diameter expressed in 1/10 mm,
 - . the basic length code,
 - . the material code,

R
R
R
R
R
R
R
R
R
R
R



20.03.04.

R

1.3 Installation requirements

It is recommended that phosphorous bronze inserts be used. The installation possibilities depend on the free surface area remaining available around the hole to be repaired.

A special tool is required to fit a threaded insert, and this varies according to the diameter of the insert to be fitted. The following are required for the fitting operation.

- . a HELI-COIL special tap matching with the threaded insert,
- . a fitting tool consisting of a nose and a spindle for Heli-coil inserts.
- . a tang breaking tool.

1.4 Installation of threaded inserts (Figure 1)

1) Drill pilot hole using a standard tap (Refer to Table page 4 for hole diameter and depth). It is recommended of not making a chamfer.

2) Tapping destined to receive threaded insert (A1-A2).

- Use a HELI-COIL special tap matching with the threaded insert. The minimum depth of tapping must be equal to nominal length of HELI-COIL insert. It is recommended to check the tapping using special master gages.

3) Fitting the insert

- On spindle fitting tool, introduce the insert, the driving tang (1) being downward,
- Rotate the spindle until the first thread shows forward the nose,
- Position the centered nose in tapped hole,
- Position by rotating spindle and making sure that the last thread (0.25 to 0.75 pitch) is not below the part face.
In all cases, the HELI-COIL insert ends must be maintained within the tapping.

4) Breaking of tang

- On new thread, tang (3) will be broken with breaking tool.
- Introduce this tool in the threaded insert so as to be supported by the tang,
- Apply a brief blow to the tool to break tang at notch provided on HELI-COIL insert thread.

NOTE : The use of HELI-COIL threads inside blind holes do not require breaking of tang except if the tapped length is fully used.

Z

SCREW NOMINAL DIAMETER "D"		2.5	3	4	5	6	7	8
PITCH		0.45	0.5	0.7	0.8	1.00		1.25
"E" Basic lengths	0.5	D						
	0.75	D						
	1	D	2.5					
	1.5	D	3.8	3	4	5	6	7
	2	D	5	6	8	10	12	14
	2.5	D	6.3	7.5	10	12.5	15	17.5
	3	D	7.5	9	12	15	18	21
								24
Free insert O.D. "A"	max.	3.5	4.2	5.35	6.6	7.85	8.9	10.1
	min.	3.3	4	5.15	6.35	7.6	8.65	9.85
TAPPED HOLE								
Pilot hole drilling diameter		2.6	3.2	4.2	5.2	6.3	7.3	8.4
"S" Blind hole minimum depth	0.5	D						
	0.75	D						
	1	D	4.3	5	6.8	8.2	10	11
	1.5	D	5.6	6.5	8.8	10.7	13	14.5
	2	D	6.8	8	10.8	13.2	16	18
	2.5	D	8.1	9.5	12.8	15.7	19	21.5
	3	D	9.3	11	14.8	18.2	22	25
								29
Max. tapped dia. "T"		3.1	3.7	4.9	6.1	7.4	8.4	9.7
FITTED INSERT								
"L" Max. length of fitted insert	0.5	D						
	0.75	D						
	1	D	2	2.5	3.3	4.2	5	6
	1.5	D	3.3	4	5.3	6.7	8	9.5
	2	D	4.5	5.5	7.3	9.2	11	13
	2.5	D	5.8	7.3	9.3	11.7	14	16.5
	3	D	7	8.5	11.3	14.2	17	20
								22.8
"N" Mini. usable self-locking length	1	D						
	1.5	D	3.2	3.8	5.1	6.2	7.0	7.8
	2	D	4.4	5.3	7.1	8.7	10	9.8
	2.5	D	4.4	5.3	7.1	8.7	10	13.8
	3	D	5.7	6.8	9.1	11.2	13	13.8
								17.8
	"R"	0.5	D					
	0.75	D						
Max. screw length engaged in blind hole	1	D	1.8	2.3	3	3.3	4.5	5.5
	1.5	D	3.1	3.8	5	6.3	7.5	9
	2	D	4.3	5.3	7	8.8	10.5	12.5
	2.5	D	5.6	6.8	9	11.3	13.5	16
	3	D	6.8	8.8	11	13.8	16.5	19.5
								22.1

N

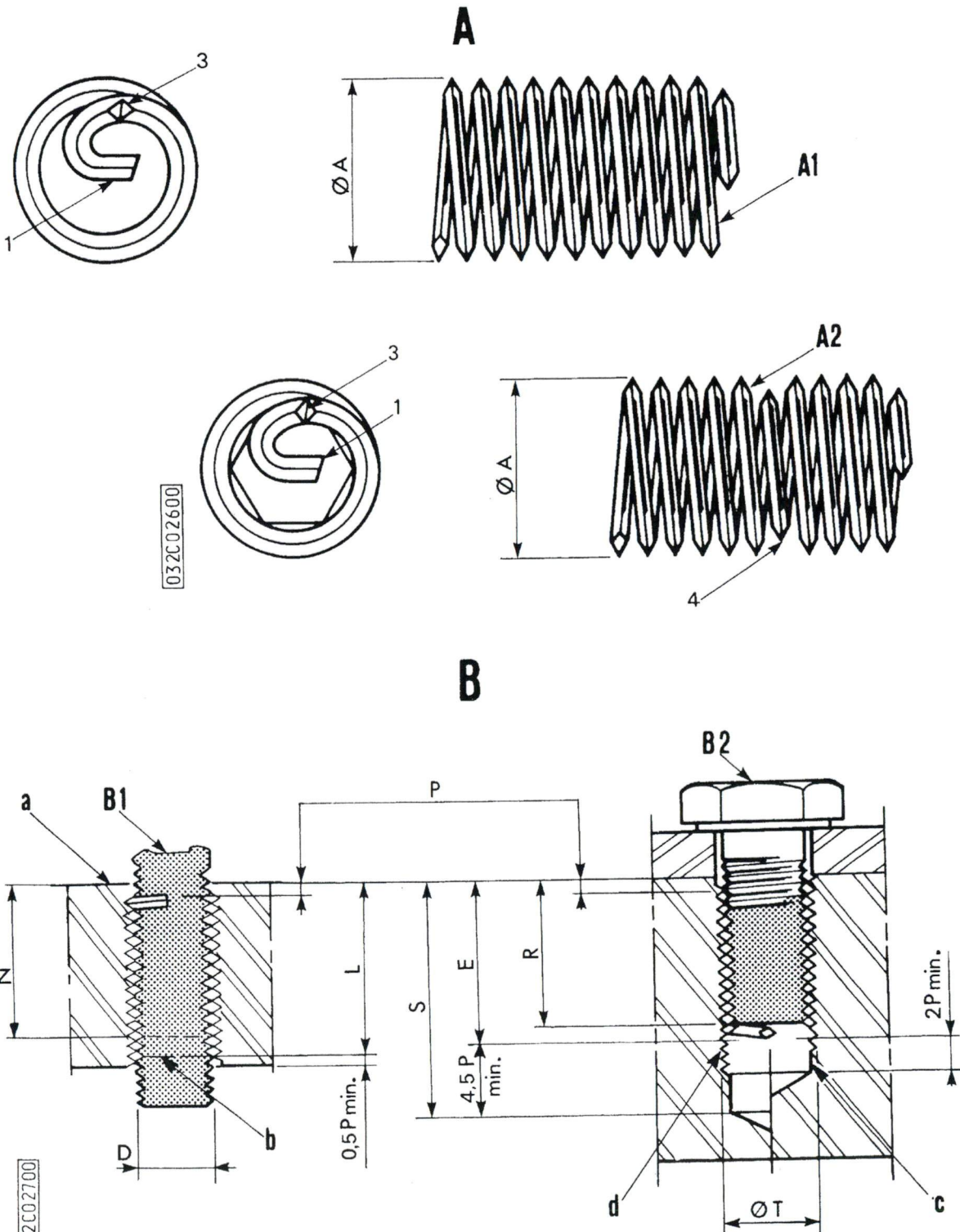
SCREW NOMINAL DIAMETER "D"		10	12	14	16	18	20	22
PITCH		1.50						
"E" Basic lengths	0.5	D			8	9	10	11
	0.75	D			12	13.5	15	16.5
	1	D	10	12	14	16	18	20
	1.5	D	15	18	21	24	27	30
Free insert O.D. "A"	2	D	20	24	28	32	36	40
	2.5	D	25	30	36			44
	3	D	30	36	42			
TAPPED HOLE								
Pilot hole drilling diameter		10.5	12.5	14.5	16.5	18.5	20.5	22.5
"S" Blind hole minimum depth	0.5	D			14	15	16	17
	0.75	D			18	19.5	21	22.5
	1	D	16	18	20	24	26	28
	1.5	D	21	24	27	33	36	39
	2	D	26	30	34	42	46	50
Max. tapped dia. "T"	2.5	D	31	36	41			
	3	D	36	42	48			
			12.1	14.1	16.1	18.1	20.1	22.1
FITTED INSERT								
"L" Max. length of fitted insert	0.5	D			6.5	7.5	8.5	9.5
	0.75	D			10.5	12	13.5	15
	1	D	8.5	10.5	12.5	14.5	16.5	18.5
	1.5	D	13.5	16.5	19.5	22.5	25.5	28.5
"N" Mini. usable self-locking length	2	D	18.5	22.5	26.5	30.5	34.5	38.5
	2.5	D	23.5	28.5	33.5	38.5	42.5	
	3	D	28.5	34.5	40.5			
"R" Max. screw length engaged in blind hole	1	D	9.5		12.5	14.3	15.3	16.3
	1.5	D	12	13.5	16.5	18.8	20.3	21.8
	2	D	17	19.5	22	27.8	30.3	32.8
	2.5	D	22	25.5				
Free insert O.D. "A"	0.5	D			5.8	6.8	7.8	8.8
	0.75	D			9.8	11.3	12.8	14.3
	1	D	7.8	9.8	13.8	15.8	17.8	19.8
	1.5	D	12.8	15.8	21.8	24.8	27.8	30.8
Max. tapped dia. "T"	2	D	17.8	21.8	29.8	33.8	37.8	41.8
	2.5	D	22.8	27.8				
	3	D	27.8	33.8				

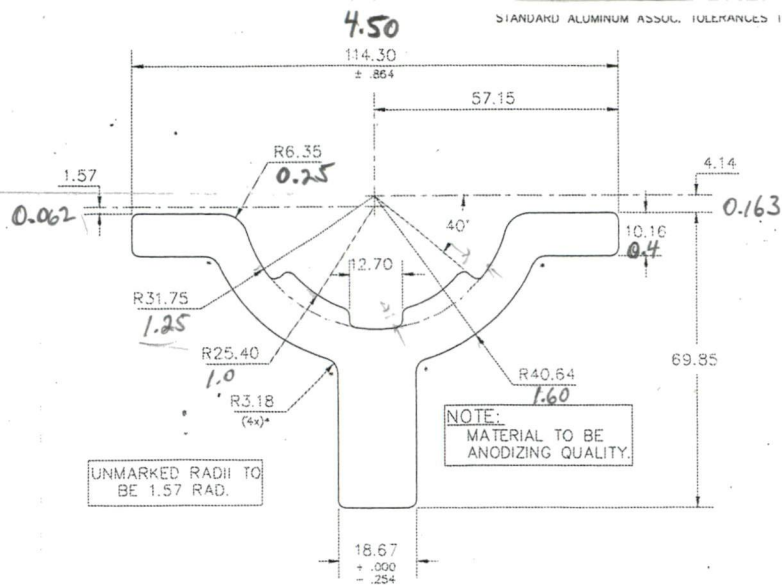
N

1.5 Extraction of a threaded insert

- If it is necessary to extract an HELI COIL insert (it is possible to do it using an HELI COIL extractor).
- Insert the triangular and sharp part of extractor into the thread.
- Press strongly on handle while turning it to the left to remove thread from tapped hole.

R





EXPOSED SURFACE

ACTUAL SIZE

3.226	2081.60	0.000	0.00	95/08 A REMOVED I.D. MARK.
3.794	5.646	4	/ 65	
14.353	364.56	4.508	114.51	
		1:1	95/08/03	
2	1	9 x 1.5	1/2	9 x 4
188	6005A T5	13		11155
				C-11

VS-10397A

Department of Transport

Supplemental Type Certificate

This approval is issued to:

AERO Design Ltd.
2013 39th Avenue NE
Calgary, Alberta
Canada T2E 6R7

Number: SH08-XX

Issue No.: 1

Approval Date: November, 2008

Issue Date: November, 2008

Responsible Office:

Prairie and Northern

Aircraft/Engine Type or Model:

Eurocopter AS350 B, B1, B2, B3, BA, D, D1
Eurocopter AS355 E, F, F1, F2, N, NP

Registration/Serial No.:

All eligible

Canadian Type Certificate or Equivalent:

H-83 (AS350 series), H-87 (AS355 Series)

Description of Type Design Change:

Installation of Quick Release Maintenance Step; Installation of Maintenance Peg Step; Installation of Fixed Cabin Step

Installation/Operating Data, Required Equipment and Limitations:

Configuration A – Quick Release Maintenance Step:

Installation of the External Attachment Provisions in accordance with STC SH08-16 (Configuration A) is a prerequisite for installation of Configuration A, Quick Release Maintenance Step Installation. Installation of the Quick Release Maintenance Step to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List, DCL827-1, Revision 0, dated 31 October 2008, or later approved revision.

External Attachment Provisions may remain installed if the Step Installation is removed.

Transport Canada approved, AERO Design Ltd. Flight Manual Supplement FMS764.91, Revision 1, dated 07 November 2008, or later approved revision is required with this installation.

Transport Canada accepted, AERO Design Ltd. Instructions for Continued Airworthiness ICA827.91, Revision 0, dated 20 October, 2008, or later accepted revision is required with this installation.

Conditions: This approval is only applicable to the type/model of aeronautical product specified therein. Prior to incorporating this modification, the installer shall establish that the interrelationship between this change and any other modification(s) incorporated **will not** adversely affect the airworthiness of the modified product.

For Minister of Transport

NOTE: THIS ADDENDUM SHALL REMAIN PART OF THE CERTIFICATE REFERRED TO THEREIN.

Configuration B – Maintenance Peg Step:

Installation of the External Attachment Provisions in accordance with STC SH08-16 (Configuration A) is a prerequisite for installation of Configuration B, Maintenance Peg Step Installation. Installation of the Maintenance Peg Step to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List, DCL827-2, Revision 0, dated 7 November 2008, or later approved revision.

Configuration C – Fixed Cabin Step:

Installation of the Fixed Cabin Step to be completed in accordance with Transport Canada approved, AERO Design Ltd. Document Control List, DCL827-3, Revision 1, dated 31 October 2008, or later approved revision.

Transport Canada accepted, AERO Design Ltd. Instructions for Continued Airworthiness ICA827.92, Revision 0, dated 20 October, 2008, or later accepted revision is required with this installation.

Basis of Certification:

Basis of certification remains as defined in the applicable Type Certificate Data Sheets.

– End –

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 529

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.91)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82701, 82702

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.91)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

A527.4 AWL - Separate Section 1

The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."

ICA ref: Eurocopter AS350/AS355
Maintenance Manual, Chapter 4

Supplemental ICA ref: Chapter 4

BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature:  Date: November 7, 2008

Applicants Name: E. Burgoin, P.Eng, DAR 290M

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: _____ Phone # _____ Email: _____ Mail Routing Symbol: _____

Signature: _____ Date: _____ NAPA Number _____

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.91

QUICK RELEASE MAINTENANCE STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Quick Release Maintenance Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-11, Revision 0, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0
Date: 20 October, 2008

AERO Design Ltd.
Engineering Consultants

2013 – 39th Avenue N.E., Calgary, Alberta T2E 6R7
Phone: (403) 250-8027
Fax: (403) 250-8333
E-Mail: infor@aerodesign.ca

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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0			Original Issue

LIST OF EFFECTIVE PAGES

List of Revisions

Revision 0 (Original Issue) 20 October, 2008

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	0
Revision Record/List of Effective Pages	2	0
Table of Contents	3	0
00-00-00	4-5	0
04-00-00	6	0
05-00-00	7-9	0
25-50-00	10-12	0

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CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Quick Release Maintenance Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness
LH - Left Hand
RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Quick Release Maintenance Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

High Mounted Quick Release Provisions:

The Quick Release Maintenance Step must be installed in the lower (stowed) position prior to installation of the AERO Design Ltd. Cargo Baskets in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION

The Quick Release Maintenance Step installation consists of a step assembly which is attached to quick release mounting provisions installed on the helicopter. These mounting provisions are capable of mounting various equipment including cargo baskets.

The step itself consists of an aluminum extrusion attached to brackets on the ends with fittings that lock into the quick release mechanism.

Two positions are provided: upper for use in maintenance activities and lower for stowing under a cargo basket.

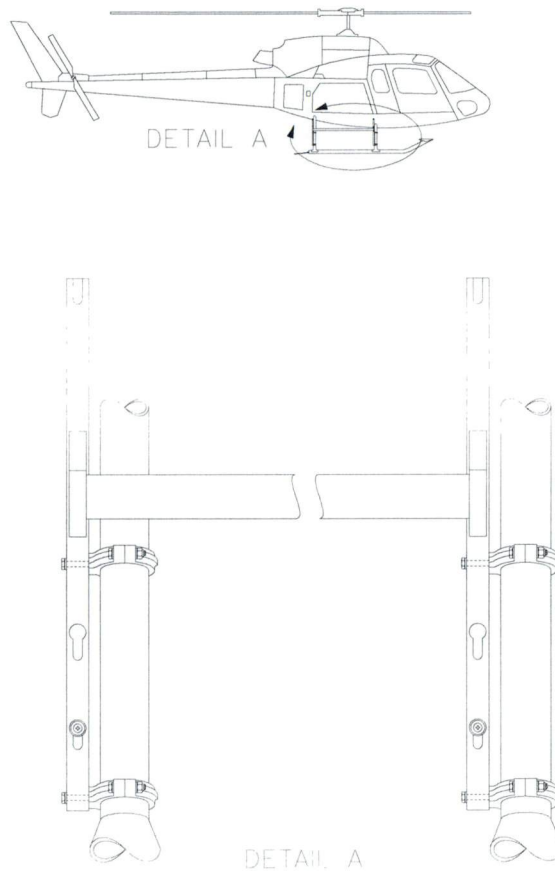


Figure 1 – AS350 Quick Release Maintenance Step Installation
(High Installation shown, Low Installation similar)

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is Transport Canada-approved and specifies maintenance required under Section 571 of the Canadian Aviation Regulations, unless an alternative program has been approved.

No additional airworthiness limitations have been imposed due the installation of the Quick Release Maintenance Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Quick Release Maintenance Step.

Daily Inspection

1. Inspection Area: Step

- a) Inspect the step attachment to the beams for condition and security. Ensure quick release mechanism is completely extended, flush with the outboard surface of the beam.

300 Hour or Annual Inspection

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for inspection of mounting provisions.

1. Inspection Area: Step

- a) Visually inspect welds attaching end brackets to step extrusion for cracks, corrosion or other damage.
- b) Visually inspect step for damage.
- c) Visually inspect lugs attaching the step to the beams for security and damage.

Special Inspections

Following a hard landing inspect the Quick Release Maintenance Step installation in accordance with the 300 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for further limits and repair instructions.

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Step Assembly

Part	Type of Damage	Max. Allowable	Repair
Step End Bracket	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Bent Lugs	None	N/A
Centre Step Section	Corrosion	2" x 2" x 0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 1" long	Blend up to 0.010" deep with scotchbrite.
	Cracks / Dents	None	N/A
	Permanent Deflection of Step	0.25" max at middle of step	None

2. Steel Beams

Part	Type of Damage	Max. Allowable	Repair
Steel Beam	Corrosion	0.030" deep	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (Outboard face)	0.030" deep x 0.125" wide	Blend up to 0.030" deep with scotchbrite.
	Scratches / Nicks (all other sides)	0.060" deep x 0.125" wide	Blend up to 0.060" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Elongation of Keyway	See figure 3	None
	Widening of slots	27/64" (0.422) diameter (check with a 27/64" drill)	None



Figure 2 – Critical Keyway dimensions (Low Beams)

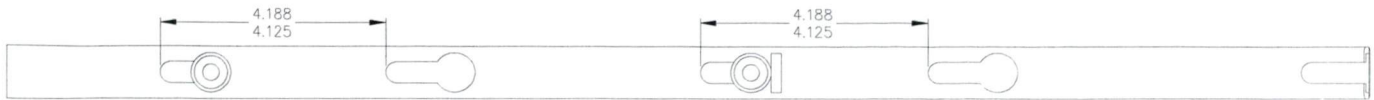


Figure 3 – Critical Keyway dimensions (High Beams)

3. Step Welds

Cracks up to 0.25" long may be repaired as follows:

- a) Clean area of paint.
- b) Grind away weld in area of crack.
- c) T.I.G. weld per MIL-STD-2219 Class "C" using ER4043 filler rod. Do not grind flush.
- d) Touch up paint as noted in section 5-3.

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Quick Release Maintenance Step Installation may be applied to the right and/or left side of the helicopter. Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for installation and removal instructions for the mounting provisions.

25-1 STEP INSTALLATION

Refer to Figure 4.

1. Set upper attachment into upper keyway in forward and aft beams.
2. Lift step until lower attachment fitting hits stop. Push fitting into keyway and slide step down until locked.

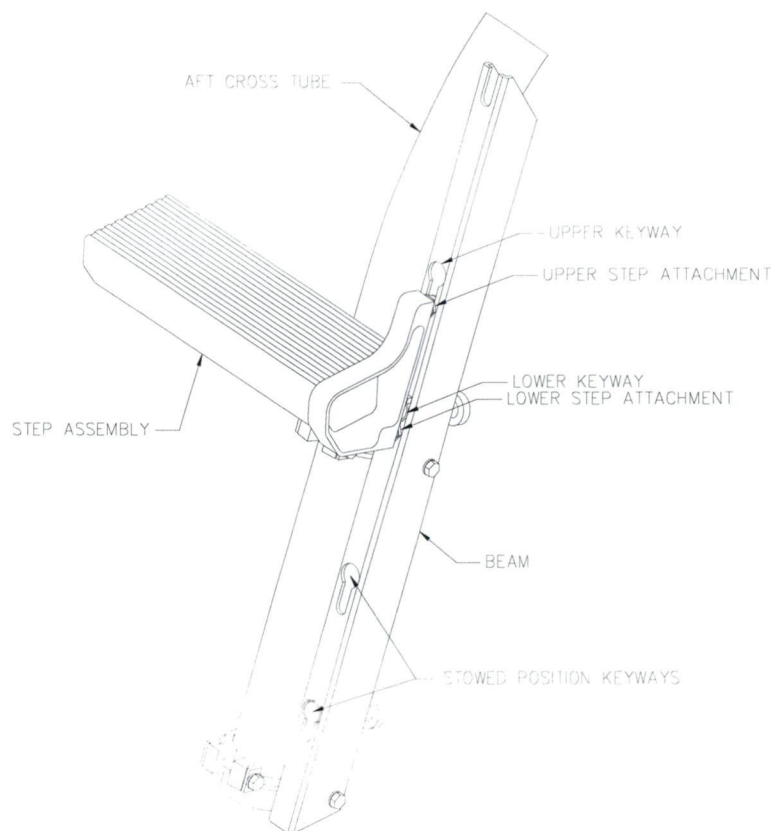


Figure 4 – Step Attachment
(High Installation shown, Low Installation similar)

25-2 STEP REMOVAL

Refer to Figure 4.

1. Pull knob at bottom end of forward beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
2. Pull knob at bottom end of aft beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.

3. Lift step until upper attachments are out of keyways on both beams and remove from helicopter.

25-3 WEIGHT AND BALANCE

Difference weight and balance configurations are required for the pilot. The first is the installation of Provisions only. The second is Provisions and Step in the upper position. The third is Provisions and step in the lower position (High Configuration only). These configurations are required because the step may be removed/installed in the field by the pilot.

Standard

P/N	Description	Weight	Longitudinal		Lateral	
			arm	moment	arm	moment
	<i>Upper Position (High config.)</i>	lb	in	in-lb	in	in-lb
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	38.9	249.0
82701-01	Step Installation	16.4	135.6	2223.4	37.6	617.3
<i>Lower Position (Stowed, High config.)</i>						
78601-02	High Provisions Installation	10.0	135.5	1354.9	36.8	368.3
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	41.7	266.9
82701-01	Step Installation	16.4	135.6	2223.4	38.7	635.2
<i>Low Configuration</i>						
78601-01	Low Provisions Installation	7.0	135.4	947.9	37.6	263.5
82710-01	Quick Release Maintenance Step	6.4	135.7	868.5	39.1	250.2
82702-01	Step Installation	13.4	135.6	1816.4	38.3	513.7

Metric

P/N	Description	Weight	Longitudinal		Lateral	
			arm	moment	arm	moment
	<i>Upper Position (High config.)</i>	kg	mm	mm-kg	mm	mm-kg
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	988.0	2865.2
82701-01	Step Installation	7.4	3441.3	25465.7	956.1	7075.0
<i>Lower Position (Stowed, High config.)</i>						
78601-02	High Provisions Installation	4.5	3441.3	15485.9	935.5	4209.8
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	1059.0	3071.1
82701-01	Step Installation	7.4	3441.3	25465.7	983.9	7280.9
<i>Low Configuration</i>						
78601-01	Low Provisions Installation	3.2	3439.6	11006.7	955.0	3056.1
82710-01	Quick Release Maintenance Step	2.9	3446.8	9979.8	993.1	2880.1
82702-01	Step Installation	6.1	3440.4	20986.5	973.1	5936.2

Note: Lateral arms are given for right side installation. For installation on left side, lateral arms are negative.

25-4 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

AS350 & AS355 SERIES HELICOPTERS

ROTORCRAFT FLIGHT MANUAL SUPPLEMENT for the INSTALLATION of the AERO DESIGN QUICK RELEASE CARGO BASKET AND/OR QUICK RELEASE MAINTENANCE STEP

**CARGO BASKET MODELS:
76401, 77601, 77602, 78401, 78402**

**QUICK RELEASE MAINTENANCE STEP MODELS:
82701, 82702**

Supplemental Type Certificate No. SH08-16

Sections I, II, III and IV of this document comprise the Transport Canada Approved sections of this Flight Manual Supplement. Compliance with Section I, Limitations, is mandatory. Section V and any subsequent sections if present are Unapproved and are provided for information only.

The information and data contained in this Flight Manual Supplement supersede or supplement that contained in the basic Approved Flight Manual for the Eurocopter AS350 and AS355 Series Helicopters when fitted with the Quick Release Cargo Basket Installation and/or Quick Release Maintenance Step Installation. For limitations, procedures and performance not listed in this Flight Manual Supplement refer to the Approved Flight Manual and other approved Flight Manual Supplements.

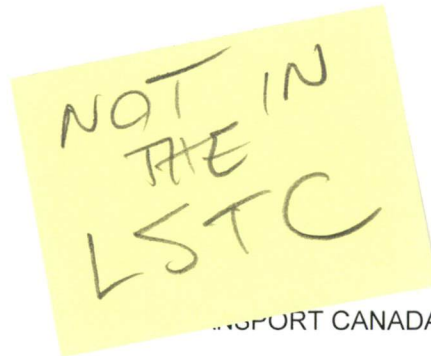


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Record of Revisions

Revision	Issue Date	Pages Revised	Date Inserted	By
0	25 Feb, 2008	None		
1	07 Nov, 2008	1, 2, 4, 15-21		

I LIMITATIONS

1. The maximum load in the AERO Design Ltd. Quick Release Cargo Basket Models 764 and 784 is 200 lb. (90.5 kg). The maximum load in the AERO Design Ltd. Quick Release Cargo Basket Model 776 is 300 lb. (135.7 kg).
2. Only one basket may be installed on the helicopter, on the right or left side.
3. Flight operations limited to VFR conditions with AERO Design Ltd. Quick Release Cargo Basket installed.
4. V_{NE} is unchanged from the basic rotorcraft.
5. AS355NP only: For Category A operations, the basket must be removed. Mounting provisions may be left in place.

II NORMAL PROCEDURES

1. Pre-flight inspections:
 - a) Ensure that all cargo stored in the cargo basket is properly tied down and secured for flight.
 - b) Ensure that the lid of cargo basket is closed and secured.
 - c) Ensure the basket is locked in position on the beams. Pull up on the forward and aft end of the basket to check.

CAUTION

It is possible to exceed the lateral centre of gravity limits of the rotorcraft under some loading conditions. Pilots must ensure that lateral C of G is within limits when loading the basket.

III EMERGENCY PROCEDURES

No change from basic Approved Flight Manual.

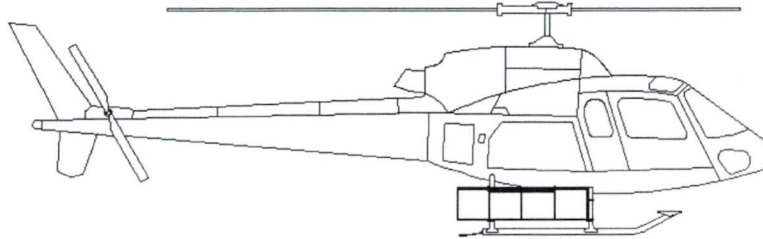
IV PERFORMANCE

1. Cruise performance and range will be reduced by approximately 8 percent with the Cargo Basket Installed.
2. AEO climb performance will be reduced by up to 150 fpm.

V WEIGHT AND BALANCE

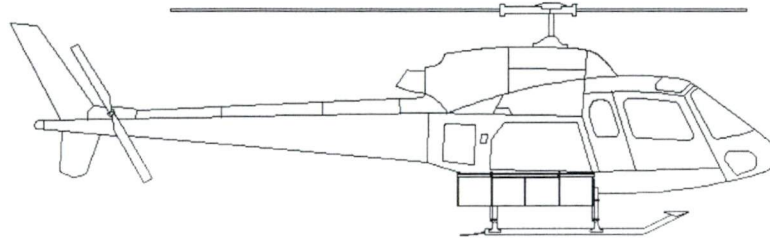
This section contains weight and balance information for cargo basket models 76401, 77601, 77602, 78401 and 78402, and maintenance step models 82701 and 82702. Each model has multiple configurations. Refer to the weight and balance information applicable to model and configuration installed.

1. **MODEL 76401.** The following weight and balance is for the cargo basket installed in accordance with drawing 76401.



Quick Release Cargo Basket: Configuration 76401-01 (Low Mounted)

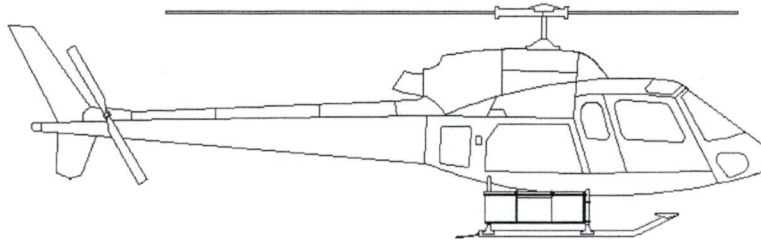
Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
76401-01 Basket Only ¹	45.0 lb	144.9 in	6520.5 in*lb	+/- 48.6 in	+/- 2187.5 in*lb
	20.4 kg	3680.5 mm	74941.5 mm*kg	+/- 1234.7 mm	+/- 25 140.8 mm*kg
Cargo ² (MAX)	200 lb	144.9 in	28 980 in*lb	+/- 48.6 in	+/- 9722 in*lb
	90.5 kg	3680.5 mm	333073.3 mm*kg	+/- 1234.7 mm	+/- 111 737.0 mm*kg



Quick Release Cargo Basket: Configuration 76401-02 (High Mounted)

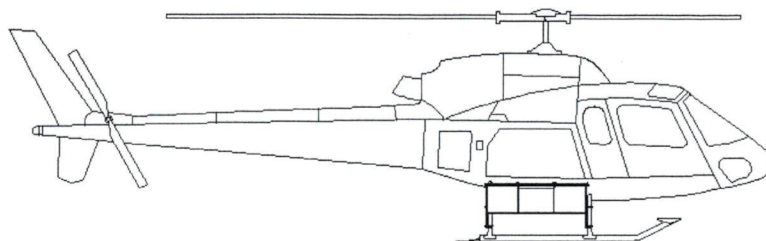
Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
76401-02 Basket Only ¹	45.0 lb	144.9 in	6520.5 in*lb	+/- 46.3 in	+/- 2084.9 in*lb
	20.4 kg	3680.5 mm	74 941.5 mm*kg	+/- 1176.8 mm	+/- 23 961.6 mm*kg
Cargo ² (MAX)	200 lb	144.9 in	28980 in*lb	+/- 46.3 in	+/- 9266.0 in*lb
	90.5 kg	3680.5 mm	333073.3 mm*kg	+/- 1176.8 mm	+/- 106 496.1 mm*kg

2. **MODEL 77601.** The following weight and balance is for the cargo basket installed in accordance with drawing 77601.



Quick Release Cargo Basket: Configuration 77601-01 (Low mounted)

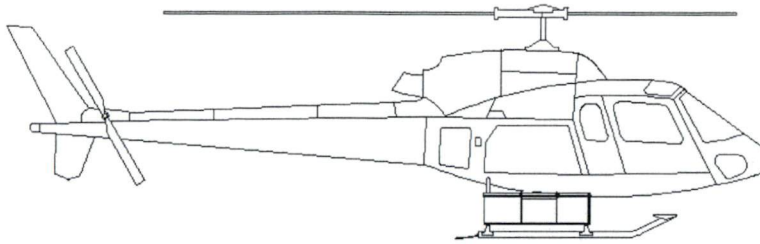
Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
77601-01 Basket Only ¹	35.0 lb	135.7 in	4749.5 in*lb	+/- 49.2 in	+/- 1723.4 in*lb
	15.8 kg	3446.8 mm	54 587.0 mm*kg	+/- 1250.7 mm	+/- 19 807.4 mm*kg
Cargo ² (MAX)	300 lb	135.7 in	40710.0 in*lb	+/- 49.2 in	+/- 14760.0 in*lb
	135.7 kg	3446.8 mm	467730.8 mm*kg	+/- 1250.7 mm	+/- 169720.0 mm*kg



Quick Release Cargo Basket: Configuration 77601-02 (High mounted)

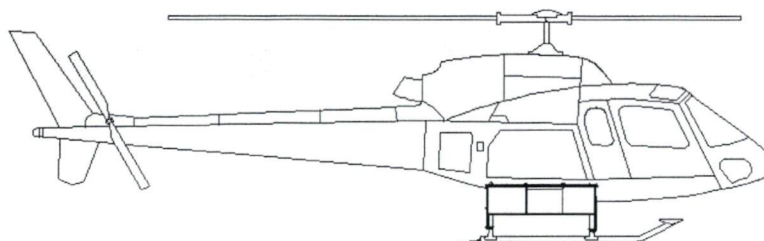
Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
77601-02 Basket Only ¹	35.0 lb	135.7 in	4749.5 in*lb	+/- 47.0 in	+/- 1643.6 in*lb
	15.8 kg	3446.8 mm	54 587.0 mm*kg	+/- 1192.8 mm	+/- 18 890.2 mm*kg
Cargo ² (MAX)	300 lb	135.7 in	40710.0 in*lb	+/- 47.0 in	+/- 14100.0 in*lb
	135.7 kg	3446.8 mm	467730.8 mm*kg	+/- 1192.8 mm	+/- 161863.0 mm*kg

3. **MODEL 77602.** The following weight and balance is for the cargo basket installed in accordance with drawing 77602.



Quick Release Cargo Basket: Configuration 77602-01 (Low mounted)

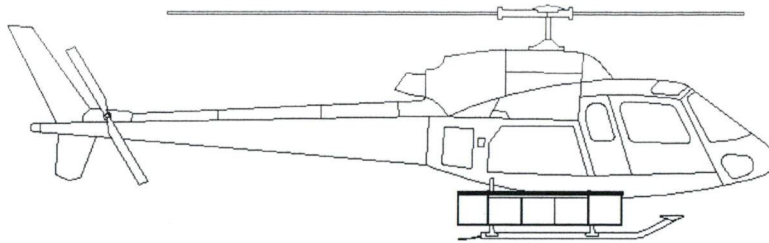
Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
77602-01 Basket Only ¹	36.2 lb	133.6 in	4836.3 in*lb	+/- 49.2 in	+/- 1781.0 in*lb
	16.4 kg	3393.4 mm	55 584.9 mm*kg	+/- 1249.7 mm	+/- 20 469.9 mm*kg
Cargo ² (MAX)	300 lb	133.6 in	40080.0 in*lb	+/- 49.2 in	+/- 14760.0 in*lb
	135.7 kg	3393.4 mm	460484.4 mm*kg	+/- 1249.7 mm	+/- 169584.3 mm*kg



Quick Release Cargo Basket: Configuration 77602-02 (High mounted)

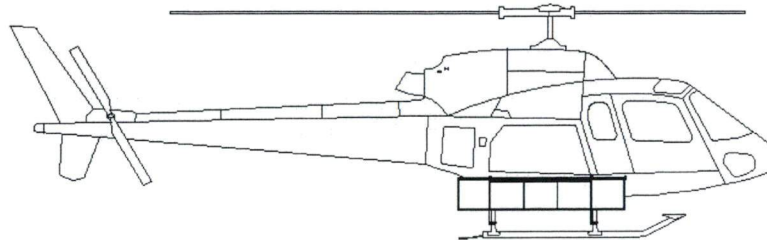
Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
77602-02 Basket Only ¹	36.2 lb	133.6 in	4836.3 in*lb	+/- 47.0 in	+/- 1700.0 in*lb
	16.4 kg	3393.4 mm	55 584.9 mm*kg	+/- 1192.8 mm	+/- 19 537.9 mm*kg
Cargo ² (MAX)	300 lb	133.6 in	40080.0 in*lb	+/- 47.0 in	+/- 14100.0 in*lb
	135.7 kg	3393.4 mm	460484.4 mm*kg	+/- 1192.8 mm	+/- 161863.0 mm*kg

4. **MODEL 78401.** The following weight and balance is for the cargo basket installed in accordance with drawing 78401.



Quick Release Cargo Basket: Configuration 78401-01 (Low Mounted)

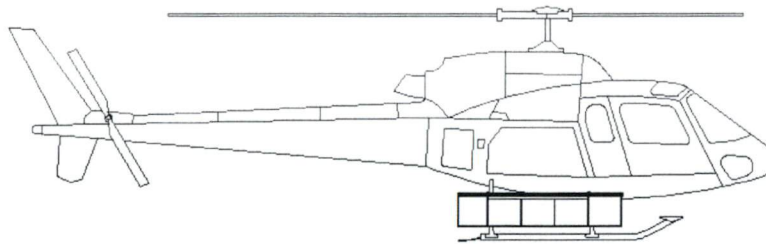
Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
78401-01 Basket Only ¹	55.0 lb	135.7 in	7463.5 in*lb	+/- 48.4 in	+/- 2659.8 in*lb
	24.9 kg	3446.8 mm	85 779.6 mm*kg	+/- 1228.3 mm	+/- 30 569.6 mm*kg
Cargo ² (MAX)	200 lb	135.7 in	27 140.0 in*lb	+/- 48.4 in	+/- 9672.0 in*lb
	90.5 kg	3446.8 mm	311 925.8 mm*kg	+/- 1228.3 mm	+/- 111 162.4 mm*kg



Quick Release Cargo Basket: Configuration 78401-02 (High Mounted)

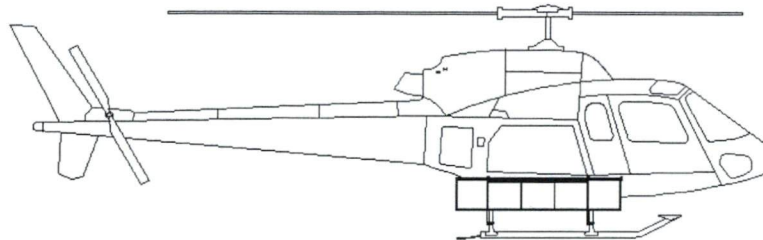
Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
78401-02 Basket Only ¹	55.0 lb	135.7 in	7463.5 in*lb	+/- 46.1 in	+/- 2534.4 in*lb
	24.9 kg	3446.8 mm	85 779.6 mm*kg	+/- 1170.4 mm	+/- 29 128.4 mm*kg
Cargo ² (MAX)	200 lb	135.7 in	27 140.0 in*lb	+/- 46.1 in	+/- 9216.0 in*lb
	90.5 kg	3446.8 mm	311 925.8 mm*kg	+/- 1170.4 mm	+/- 105 921.4 mm*kg

5. **MODEL 78402.** The following weight and balance is for the cargo basket installed in accordance with drawing 78402.



Quick Release Cargo Basket: Configuration 78402-01 (Low Mounted)

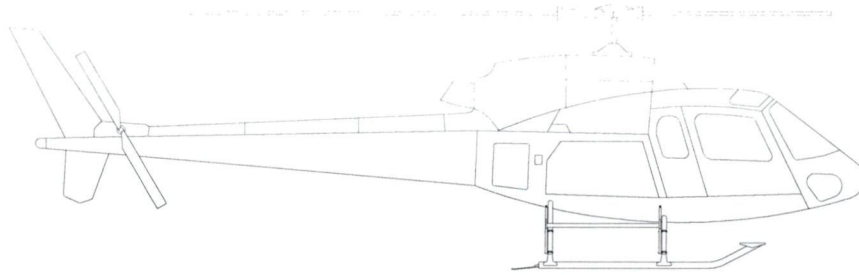
Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
78402-01 Basket Only ¹	60.0 lb	135.7 in	8142.0 in*lb	+/- 48.4 in	+/- 2901.6 in*lb
	27.1 kg	3446.8 mm	93 577.7 mm*kg	+/- 1228.3 mm	+/- 33 348.7 mm*kg
Cargo ² (MAX)	200 lb	135.7 in	35 850 in*lb	+/- 48.4 in	+/- 18 660 in*lb
	90.5 kg	3446.8 mm	27 140.0 mm*kg	+/- 1228.3 mm	+/- 111 162.4 mm*kg



Quick Release Cargo Basket: Configuration 78402-02 (High Mounted)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
78402-02 Basket Only ¹	60.0 lb	135.7 in	8142.0 in*lb	+/- 46.1 in	+/- 2764.8 in*lb
	27.1 kg	3446.8 mm	93 577.7 mm*kg	+/- 1170.4 mm	+/- 31 776.4 mm*kg
Cargo ² (MAX)	200 lb	135.7 in	27 140.0 in*lb	+/- 46.1 in	+/- 9216.0 in*lb
	90.5 kg	3446.8 mm	311 925.8 mm*kg	+/- 1170.4 mm	+/- 105 921.4 mm*kg

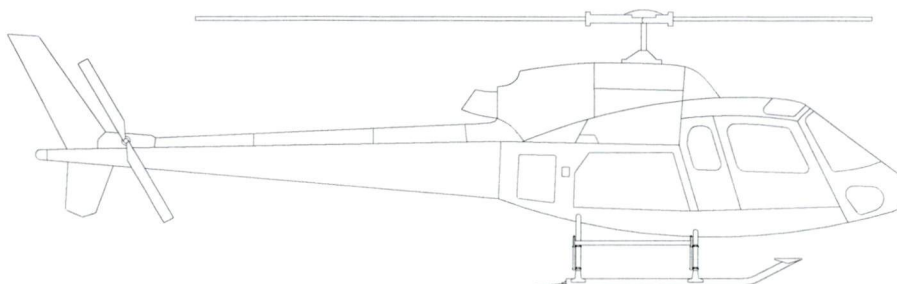
6. **MAINTENANCE STEP 82701.** The following weight and balance is for the quick release maintenance step installed in accordance with drawing 82701. Upper and lower (stowed) positions are provided, either position is approved for flight.



Maintenance Step: Configuration 82701-01 (High Mounted Provisions)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82701-01 ¹ (upper position)	6.4 lb	135.7 in	868.5 in*lb	+/- 38.9 in	+/- 249.0 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	+/- 988.0 mm	+/- 2 865.2 mm*kg
82701-01 ¹ (stowed position)	6.4 lb	135.7 in	868.5 in*lb	+/- 41.7 in	+/- 266.9 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	+/- 1059.0 mm	+/- 3 071.1 mm*kg

7. **MAINTENANCE STEP 82702.** The following weight and balance is for the maintenance step installed in accordance with drawing 82702.



Maintenance Step: Configuration 82702-01 (Low Mounted Provisions)

Item	Weight	Longitudinal		Lateral	
		Arm	Moment	Arm	Moment
82702-01 ¹ (upper position)	6.4 lb	135.7 in	868.5 in*lb	+/- 39.1 in	+/- 250.2 in*lb
	2.9 kg	3446.8 mm	9 979.8 mm*kg	+/- 993.1 mm	+/- 2 880.1 mm*kg

¹ Weight and balance is for Cargo Basket / Maintenance Step only. Mounting beams are not included since they should have been included in the basic rotorcraft weight and balance at time of initial installation.

² Longitudinal and Lateral moment arms are given only for the center of the Cargo Basket. Due to the length of the basket, some loading arrangements may require that actual moment arms be measured, to determine the correct moments about the center of gravity.

CAUTION:

It is possible to exceed lateral CG limits in some configurations.

VI INSTALLATION / REMOVAL INSTRUCTIONS

Cargo Baskets

The beams are installed in accordance with 78601. The basket is installed in accordance with drawing 76401, 77601 or 78401, as applicable. Removal of the basket leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of basket and which weight and balance amendment is in effect is required when basket is installed or removed.

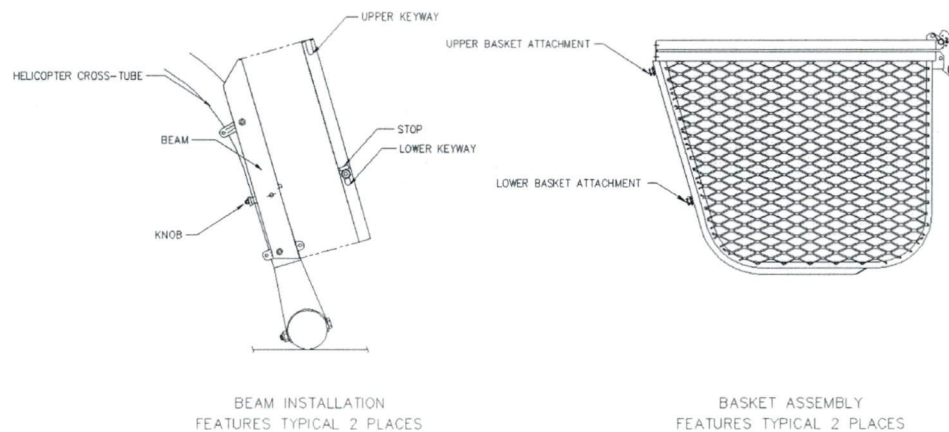


Figure 1 – Basket Attachment Features (Low beam installation shown. Beam attachment features typical for low and high beam installations)

8. Installation - Refer to Figure 1 and Figure 2.
 - a) Set basket upper attachment into upper keyway in forward and aft beams.
 - b) At forward attachment hoop, lift basket until lower attachment fitting hits stop.
 - c) Push fitting into keyway and slide basket down until locked.
 - d) Repeat step a,b and c for aft attachment hoop.

2. Removal - Refer to Figure 1 and Figure 2.

- a) Pull knob at bottom end of forward beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in keyway on beam.
- b) Pull knob at bottom end of aft beam and lift basket until lower attachment fitting is free of keyway. Keep upper basket attachment in keyway on beam.
- c) Lift basket until upper attachments are out of keyways on both beams and remove basket from helicopter.

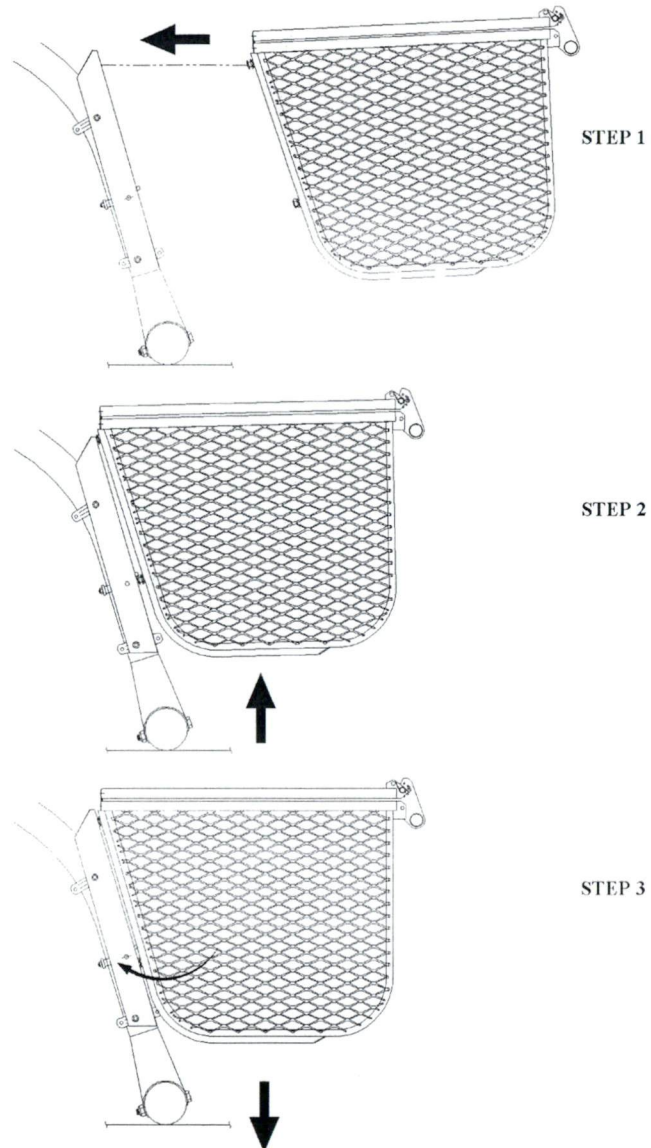


Figure 2 – Basket Attachment Steps (Low basket installation shown.
Installation instructions typical for low and high basket installation).

Maintenance Step

The beams are installed in accordance with 78601. The maintenance step is installed in accordance with drawing 82701 or 82702, as applicable. Removal of the step leaving the beams in place is an approved configuration for flight. Logbook entry indicating installation or removal of step and which weight and balance amendment is in effect is required when step is installed or removed.

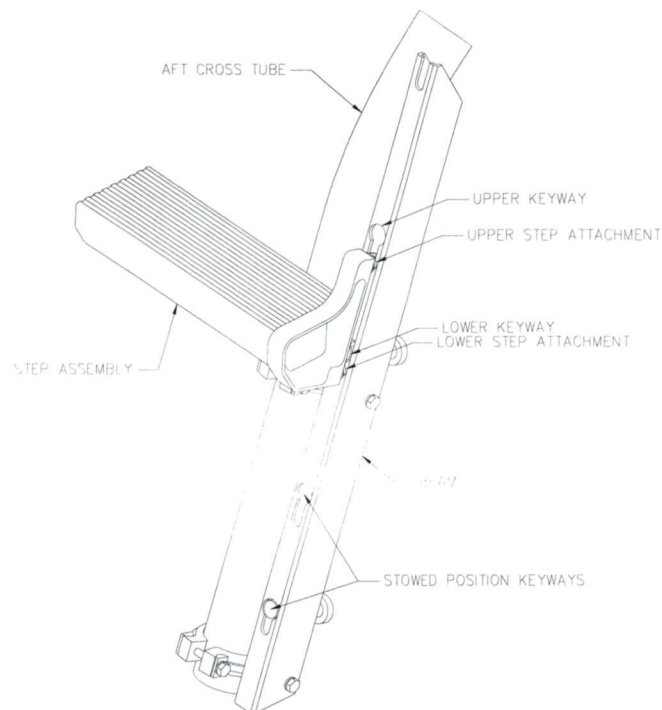


Figure 3 – Step Attachment Features

Figure 1 – Basket Attachment Features (High beam installation shown.
Stowed position is only available on High beam installation.)

1. Installation - Refer to Figure 3.
 - a) Set step upper attachment into upper keyway in forward and aft beams.
 - b) Lift step until lower attachment fitting hits stop.
 - c) Push fitting into keyway and slide basket down until locked.

2. Removal - Refer to Figure 1 and Figure 2.

- a) Pull knob at bottom end of forward beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
- b) Pull knob at bottom end of aft beam and lift step until lower attachment fitting is free of keyway. Keep upper attachment in keyway on beam.
- c) Lift step until upper attachments are out of keyways on both beams and remove step from helicopter

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

APPENDIX A-3 NORMAL CATEGORY ROTORCRAFT – CAR 529

BLOCK 1

Name of the applicant for the design change approval:	Aero Design Ltd.
Description of the design change:	Installation of Quick Release Maintenance Step on Eurocopter AS350 & AS355 Series
Certification Basis of design change and revision date:	FAR 27, Amendment 27-20
CAR Standard A527.1(c) Program showing how changes to supplemental ICA made by the applicant or by the manufacturers of products and appliances installed in the aeroplane pursuant to the design change will be distributed:	Section 0-3 of Supplemental ICA (ICA 827.92)
CAR Standard 513.05 (1) (g) (iv): Installation Instructions:	Installation Drawing 82704, 82705

BLOCK 2

Note: Enter "N/A" when no supplemental ICA are needed.

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.2 (a) Manual(s) (a) The Instructions for Continued Airworthiness must be in the form of a manual or manuals as appropriate for the quantity of data to be provided.	ICA ref: Eurocopter AS350/AS355 Maintenance Manuals	Supplemental ICA ref: Single Manual (ICA827.91)
A527.2 (b) Practical arrangement (b) The format of the manual or manuals must provide for a practical arrangement.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual	Supplemental ICA ref: Arranged in ATA format
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (a) Rotorcraft maintenance manual or section		
A527.3 (a) (1) (Introduction) (1) Introduction information that includes an explanation of the rotorcraft's features and data to the extent necessary for maintenance or preventive maintenance.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-1
A527.3 (a) (2) (Description) (2) A description of the rotorcraft and its systems and installations including its engines, rotors, and appliances.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: Section 0-5

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (a) (3) Control & Operation (3) Basic control and operation information describing how the rotorcraft components and systems are controlled and how they operate, including any special procedures and limitations that apply.	ICA ref: Eurocopter Description and Operation Manual	Supplemental ICA ref: N/A
A527.3 (a) (4) Servicing (4) Servicing information that covers details regarding servicing points, capacities of tanks, reservoirs, types of fluids to be used, pressures applicable to the various systems, location of access panels for inspection and servicing, locations of lubrication points, lubricants to be used, equipment required for servicing, tow instructions and limitations, mooring, jacking, and levelling information.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 12	Supplemental ICA ref: N/A
A527.3 The Instructions for Continued Airworthiness must contain the following manuals or sections, as appropriate, and information:		
A527.3 (b) Maintenance Instructions.		
A527.3 (b) (1) Scheduling 1) Scheduling information for each part of the rotorcraft and its engines, auxiliary power units, rotors, accessories, instruments, and equipment that provides the recommended periods at which they should be cleaned, inspected, adjusted, tested, and lubricated, and the degree of inspection, the applicable wear tolerances, and work recommended at these periods. However, the applicant may refer to an accessory, instrument, or equipment manufacturer as the source of this information if the applicant shows that the item has an exceptionally high degree of complexity requiring specialized maintenance techniques, test equipment, or expertise. The recommended overhaul periods and necessary cross-references to the Airworthiness Limitations section of the manual must also be included. In addition, the applicant must include an inspection program that includes the frequency and extent of the inspections necessary to provide for the continued airworthiness of the rotorcraft.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (b) (2) Troubleshooting (2) Troubleshooting information describing probable malfunctions, how to recognize those malfunctions, and the remedial action for those malfunctions.	ICA ref: N/A	Supplemental ICA ref: N/A

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

Regulatory Standard Reference Column 1	Design Approval Holder (DAH) ICA Reference Column 2	Applicant Means of Compliance Supplemental ICA Requirements Column 3
A527.3 (b) (3) Removal/replacement (3) Information describing the order and method of removing and replacing products and parts with any necessary precautions to be taken.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 25	Supplemental ICA ref: Section 25-1 and 25-2
A527.3 (b) (4) General (4) Other general procedural instructions including procedures for system testing during ground running, symmetry checks, weighing and determining the center of gravity, lifting and shoring, and storage limitations.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 7 and 8	Supplemental ICA ref: Section 25-3
A527.3 (c) Access (c) Diagrams of structural access plates and information needed to gain access for inspections when access plates are not provided.	ICA ref: N/A	Supplemental ICA ref: N/A
A527.3 (d) Special inspections (d) Details for the application of special inspection techniques including radiographic and ultrasonic testing where such processes are specified.	ICA ref: Eurocopter AS350/AS355 Maintenance Manual, Chapter 5	Supplemental ICA ref: Section 5-1
A527.3 (e) Protective treatment (e) Information needed to apply protective treatments to the structure after inspection.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 5-3
A527.3 (f) Fasteners, torque values, etc (f) All data relative to structural fasteners such as identification, discard recommendations, and torque values.	ICA ref: Eurocopter Standard Practices Manual, Chapter 20	Supplemental ICA ref: Section 25-4
A527.3 (g) Special tools (g) A list of special tools needed.	ICA ref: Eurocopter Tools Catalog	Supplemental ICA ref: N/A

BLOCK 3

Note: The statement in block 5 does not constitute an approval of the Airworthiness Limitations Section. Airworthiness Limitations differ from other maintenance tasks, in that they are mandatory, as a direct condition of the approval of the type design. They are therefore referenced directly in the approval document itself. However, they must also be included in the Supplemental Instructions for Continued Airworthiness.

MSI 53 – Review of Supplemental Instructions for Continued Airworthiness

A527.4 AWL - Separate Section 1

The Instructions for Continued Airworthiness must contain a section titled Airworthiness Limitations that is segregated and clearly distinguishable from the rest of the document. This section must set forth each mandatory replacement time, structural inspection interval, and related structural inspection procedure approved under 527.571. If the Instructions for Continued Airworthiness consist of multiple documents, the section required by this paragraph must be included in the principal manual. This section must contain a legible statement in a prominent location that reads: "The Airworthiness Limitations section is approved by the Minister and specifies maintenance required by any applicable airworthiness or operating rule unless an alternative program has been approved by the Minister."

ICA ref: Eurocopter AS350/AS355
Maintenance Manual, Chapter 4

Supplemental ICA ref: Chapter 4

BLOCK 4 – Applicant Statement of Compliance

The Supplemental ICA referenced above comprises the complete listing of supplemental ICA necessary to show compliance with the regulatory standard that supports this change in type design.

Applicants Signature:  Date: November 7, 2008

Applicants Name: E. Burgoin, P.Eng, DAR 290M

BLOCK 5 – Minister's Statement of Acceptability

The design change is adequately supported by existing ICA and/or supplemental ICA, as identified above and is acceptable to the Minister.

Reviewer's Name: _____ Phone # _____ Email: _____ Mail Routing Symbol: _____

Signature: _____ Date: _____ NAPA Number _____

INSTRUCTIONS FOR CONTINUED AIRWORTHINESS ICA 827.92

FIXED CABIN STEP

Preface

These Instructions for Continued Airworthiness shall be included in the rotorcraft Maintenance Manual when the Fixed Cabin Step assembled in accordance with AERO Design Ltd. Document Control List DCL827-13, Revision 0, or later approved revision, is installed.

The information contained herein supplements the information in the basic Maintenance Manual. For Maintenance practices and procedures not contained in these Instructions for Continued Airworthiness refer to the basic Maintenance Manual and its approved supplements.

Revision 0
Date: 20 October, 2008

AERO Design Ltd.
Engineering Consultants

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Phone: (403) 250-8027
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E-Mail: infor@aerodesign.ca

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RECORD OF REVISIONS

Revision Number	Issue Date	Date Inserted	By
0			Original Issue

LIST OF EFFECTIVE PAGES

List of Revisions

Revision 0 (Original Issue)

20 October, 2008

List of Effective Pages

<u>Description</u>	<u>Pages</u>	<u>Revision No.</u>
Cover	1	0
Revision Record/List of Effective Pages	2	0
Table of Contents	3	0
00-00-00	4-5	0
04-00-00	6	0
05-00-00	7-8	0
25-50-00	9-10	0

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CHAPTER 0 – INTRODUCTION

0-1 SCOPE

The following Instructions for Continued Airworthiness (ICA) satisfy the requirements of 14 CFR 27.1529, and provide the information necessary to complete the on-going maintenance and inspections required for rotorcraft embodying the Fixed Cabin Step as described herein.

0-2 DEFINITIONS AND ABBREVIATIONS

ICA - Instructions for Continued Airworthiness
LH - Left Hand
RH - Right Hand

0-3 DISTRIBUTION

Copies of this ICA and amendments shall be distributed to all known purchasers of the Fixed Cabin Step. Requests for a copy may be made in writing to:

AERO Design Ltd.
2013 39th Avenue N.E.
Calgary, Alberta
T2E 6R7
Fax: 403-250-8333
Email: info@aerodesign.ca

Any changes will be sent to Transport Canada. All changes will be recorded in the Record of Revisions page at the front of this document.

0-4 COMPATIBILITY

Prior to incorporating this modification, the installer shall establish that the inter-relationship between this change and any other modification(s) incorporated will not adversely affect the airworthiness of the helicopter.

The Low Mounted Fixed Cabin Step (82704-01/-02) is compatible with the AERO Design Ltd. High Mounted Long Cargo Basket installed in accordance with STC SH08-16 (drawing 78401).

The High Mounted and Low Mounted Fixed Cabin Steps (82705-01/-02, and 82704-01/-02) are NOT compatible with the AERO Design Ltd. Low Mounted Long Cargo Basket installed in accordance with STC SH08-16 (drawing 78401).

The High Mounted and Low Mounted Fixed Cabin Steps are compatible with the AERO Design Ltd. Medium and Short Cargo Baskets, in both High Mounted and Low Mounted configurations installed in accordance with STC SH08-16.

0-5 GENERAL DESCRIPTION

The Fixed Cabin Step installation consists of a step assembly which is attached to the forward cross tube, running forward to the tip of the skid tube. Two configurations are provided, high and low, to accommodate AERO Design Ltd. Quick Release Cargo Baskets.

The step itself consists of an aluminum extrusion attached to an adjustable bracket on the aft end, and a sheet metal assembly that attaches to the forward end of the skid tube.

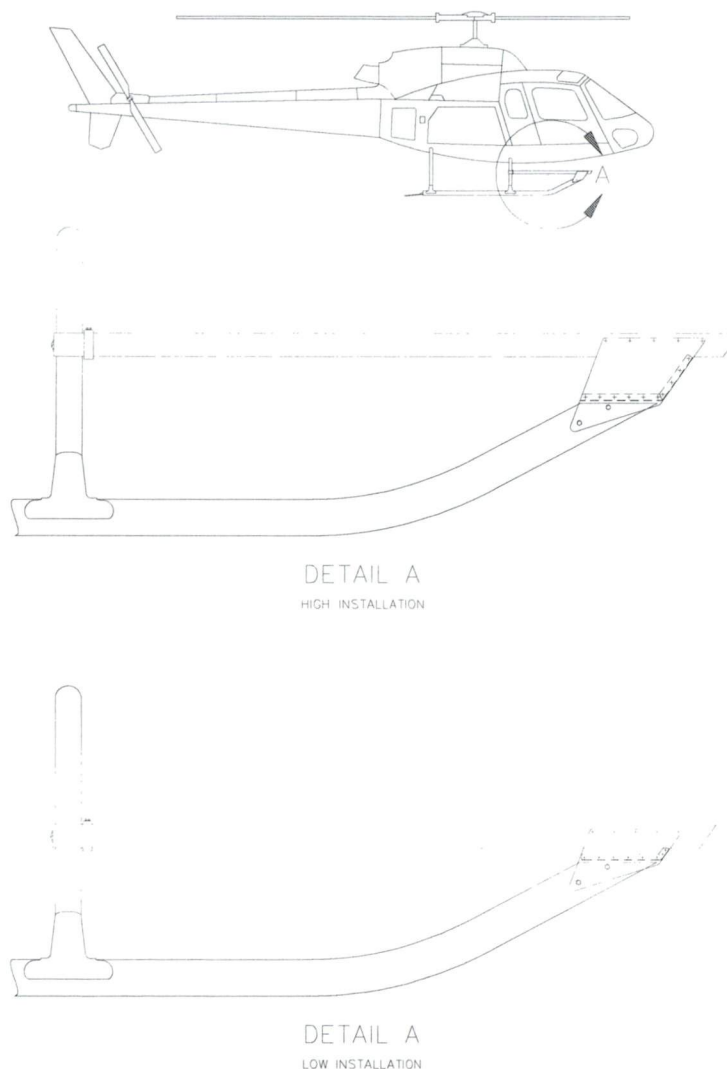


Figure 1 – AS350 Fixed Cabin Step Installation

CHAPTER 4 - AIRWORTHINESS LIMITATIONS

The Airworthiness Limitations section is Transport Canada-approved and specifies maintenance required under Section 571 of the Canadian Aviation Regulations, unless an alternative program has been approved.

No additional airworthiness limitations have been imposed due the installation of the Fixed Cabin Step.

CHAPTER 5 – INSPECTION REQUIREMENTS

5-1 INSPECTION SCHEDULE

Continued airworthiness is contingent upon compliance with the following inspection items. These items shall be completed in conjunction with the rotorcraft Maintenance Inspection schedule, or other approved program, or upon removal and replacement of any component of Fixed Cabin Step.

Daily Inspection

1. Inspection Area: Step
 - a) Inspect the clamp attaching the aft bracket to the forward cross tube for condition and security.
 - b) Inspect the aft step attachment bracket to the forward cross-tube for condition and security.
 - c) Inspect the forward step attachment sheet metal bracket for condition and security.

300 Hour or Annual Inspection

1. Inspection Area: Step
 - a) Visually inspect all mounting hardware for condition and security.
 - b) Visually inspect step, mounting brackets, and clamp for condition and security.
 - c) Check step for slippage at the clamp on the forward cross tube. Step should be parallel to the ground (+/- 0.25").

Special Inspections

Following a hard landing inspect the Fixed Cabin Step installation in accordance with the 300 hour or annual inspection listed above.

5-2 DAMAGE LIMITS / REPAIR INSTRUCTIONS

Refer to the ICA for the Quick Release Cargo Basket for each specific model of helicopter for further limits and repair instructions.

If damage is found in the inspections above, repair in accordance with the instructions below.

1. Step Assembly

Part	Type of Damage	Max. Allowable	Repair
Brackets, Clamp	Corrosion	0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 0.5" long	Blend up to 0.010" deep with scotchbrite.
	Cracks/Dents	None	N/A
	Bent Lugs	None	N/A
Step Section	Corrosion	2" x 2" x 0.010" deep	Blend up to 0.010" deep with scotchbrite.
	Scratches / Nicks	0.010" deep x 1" long	Blend up to 0.010" deep with scotchbrite.
	Cracks / Dents	None	N/A
	Permanent Deflection of Step	0.25" max at middle of step	None

5-3 PROTECTIVE TREATMENT INFORMATION

1. Step Assembly

The Step Assembly is supplied powder coated white. If the powder coat is damaged, touch up with white polyurethane paint. The tread area is painted with anti-skid paint. If the anti-skid paint is damaged, touch up with Randolph X1567 Wingwalk grip paint or equivalent.

CHAPTER 25 – EQUIPMENT AND FURNISHINGS

The Fixed Cabin Step Installation may be applied to the right and/or left side of the helicopter. Instructions are the same for the high and low mounted configurations.

25-1 STEP INSTALLATION

Refer to Figure 2 and 3.

1. Attach clamp to aft bracket with AN4-5A bolt. Torque bolt to 30-40 in-lbs.
2. Locate forward end of step assembly on skid tube.
3. Slide aft bracket along step until clamp can be attached to forward cross-tube. Bracket can be opened with a flat head screwdriver if necessary.

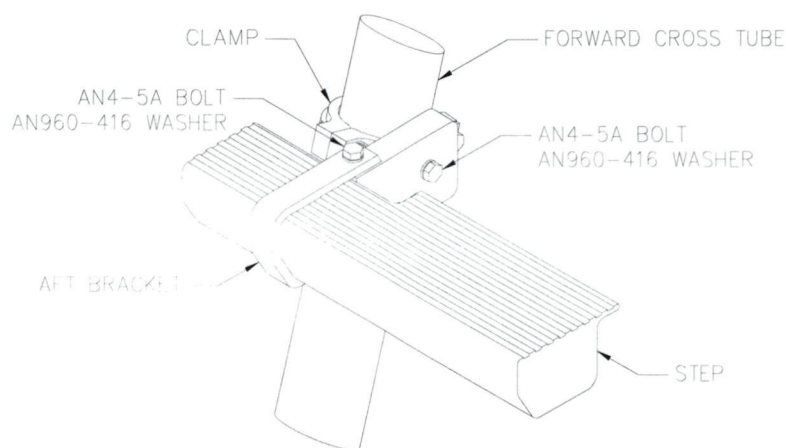


Figure 2 – Aft Step Attachment

4. Tighten clamp brackets to prevent the clamp from slipping on the cross tube.
5. At the forward end of the step, install AN3-36A Bolt, AN960-10 Washers, and MS21044N3 Nut into existing holes in forward end of skid tube.

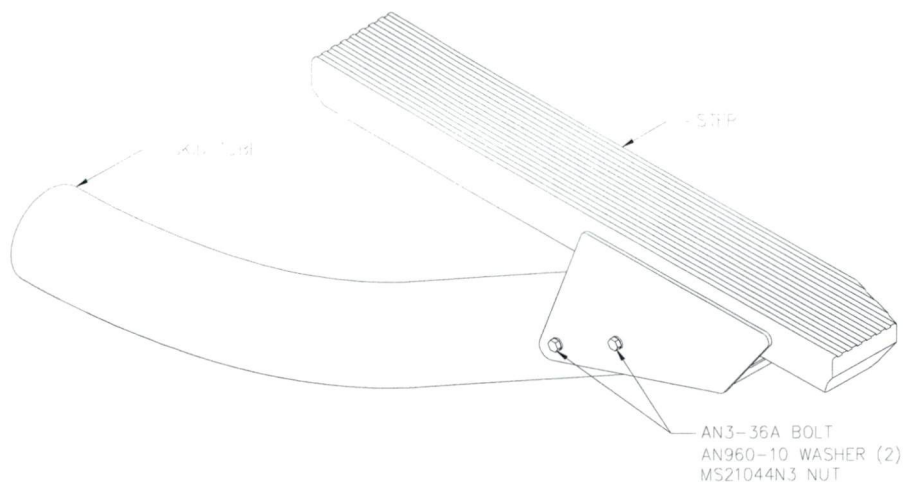


Figure 3 – Forward Step Attachment

6. Level the step parallel with the ground (+/- 0.25"). Nominal height is 14.75" for the low configuration, and 17.5" for the high configuration.
7. Tighten all hardware as follows:
 - AN3 Bolts: 20-25 in-lbs
 - AN4 Bolts: 50-70 in-lbs

25-2 STEP REMOVAL

Refer to Figure 2 and 3.

1. Remove AN3-36A Bolts, AN960-10 Washers, and MS21044N3 Nuts attaching forward end of step to skid tube.
2. If Clamp will remain installed:

Remove AN4-5A Bolt and AN960-416 Washer securing Aft Bracket to Clamp. Remove Step.

If Clamp will be removed:

Remove AN4 Bolts and hardware securing clamp to cross tube. Remove Step.

25-3 WEIGHT AND BALANCE

Eurocopter AS350 & AS355 Series

Standard

P/N	Description	Weight	Longitudinal		Lateral	
		lb	arm in	moment in-lb	arm in	moment in-lb
80004-01	Low Mounted Fixed Cabin Step Installation	7.0	77.2	540.4	41.6	291.2
80005-01	High Mounted Fixed Cabin Step Installation	8.0	76.2	609.6	41.6	332.8

Metric

P/N	Description	Weight	Longitudinal		Lateral	
		kg	arm mm	moment mm-kg	arm mm	moment mm-kg
80004-01	Low Mounted Fixed Cabin Step Installation	3.2	1961	6275	1057	3381
80005-01	High Mounted Fixed Cabin Step Installation	3.6	1935	6968	1057	3804

Note: Lateral arms are given for right side installation. For installation on left side, lateral arms are negative.

25-4 STRUCTURAL FASTENER DATA

Refer to Standard Practices Manual for torque values not listed in this ICA.

AERO Design Ltd.

**ENGINEERING REPORT
ER827.01**

**QUICK RELEASE MAINTENANCE STEP INSTALLATION
FIXED CABIN STEP INSTALLATION
PEG STEP INSTALLATION**

Eurocopter AS350 & AS355 Series

Approved: E. Burgoin, P. Eng.

Prepared by: Jeff Clarke

Revision 0
Date: 20 October, 2008

AERO Design Ltd.
Engineering Consultants

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1.0 INTRODUCTION

On the Eurocopter AS350 Series a step is required to aid access to the cabin when on high gear. The forward cross tube is located aft of the cabin door, so a step running from the forward cross tube to the forward tip of the skid tube is installed. Two different heights are provided to accommodate the large Quick Release Cargo Basket installation in accordance with drawing 78401. The same clamp arrangement is used as in the Cargo Basket installation for attachment to the forward cross tube.

When the high cargo basket mounting provisions are installed, a step installed in the basket mount will aid in access for maintenance of the helicopter when on the ground.

A step located near the aft cross tube is required to access existing step provisions on the cross tube for maintenance activities on the helicopter. A peg step is attached to the aft quick release mounting provision to provide access when a quick release maintenance step is not installed.

2.0 REFERENCE

AERO Design Ltd. Drawings 82701, 82702, 82703, 82704, 82705
MIL-HDBK-5J

3.0 BASIS OF CERTIFICATION

Eurocopter AS350 & AS355 Series, TCDS H-83/ H-87:

FAR 27, Amendment 27-20, plus select sections of later Amendments (AS355NP basis of certification).

This installation:

Same as the basis of certification for each model as shown above.

4.0 ANALYSIS OF CURRENT AIRWORTHINESS DIRECTIVES (AD'S)

This installation does not impact on any current ADs.

5.0 LOADS

5.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is located external to the cabin. It cannot be reached to be occupied in flight, therefore the maneuvering loads applied are only due to the step weight itself (6.4 lbs).

$$W_{\text{step}} = 6.4 \text{ lbs}$$

Weight of step (high mounted cabin step)

$$n_{\text{man_pos}} = 3.5$$

Limit positive maneuvering load factor (Ref: FAR 27.337)

$$n_{\text{sf}} = 1.5$$

Safety Factor (Ref: FAR 27.303)

$$n_{\text{ult_man_pos}} = n_{\text{man_pos}} \times n_{\text{sf}}$$

$$n_{\text{ult_man_pos}} = 3.5 \times 1.5 = 5.25$$

Ultimate positive maneuvering load factor

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 33.6 \text{ lbs}$$

Ultimate positive maneuvering load

5.2 Fixed Cabin Step

5.2.1 Inertia Loads

$$W_{\text{step}} = 8.0 \text{ lbs}$$

Weight of step (high mounted cabin step)

$$P_{\text{ult_man_pos}} = W_{\text{step}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 42 \text{ lbs}$$

Ultimate positive maneuvering load

The step is not intended to be used in flight. As such, there is no requirement for the application of maneuvering inertia loads due to a person on the step. However, the step is checked for ultimate inertia load applied by one person to allow for the possibility of use during rappel or similar operations.

$$W_{\text{person}} = 170 \text{ lbs}$$

Weight of person

$$P_{\text{ult_man_pos}} = W_{\text{person}} \times n_{\text{ult_man_pos}}$$

$$P_{\text{ult_man_pos}} = 892.5 \text{ lbs}$$

Ultimate positive maneuvering load applied to step by 1 person

5.2.2 Aerodynamic Loads

Drag

$$A_f := 10.2 \cdot \text{in}^2$$

Frontal Area of Step

$$V_{ne} := 155 \cdot \text{knots}$$

Never Exceed Speed of AS350/AS355/EC135
(Highest of all models)

$$V_d := \frac{V_{ne}}{0.9}$$

$$V_d = 172.2 \cdot \text{knots}$$

Design Dive Speed

$$\rho := 0.002378 \cdot \frac{\text{slug}}{\text{ft}^3}$$

Air Density at Sea Level

$$C_{Do} := 2.0$$

Coefficient of Drag (conservative)

$$P_{\text{drag}} := \frac{\rho}{2} \cdot V_d^2 \cdot A_f \cdot C_{Do}$$

$$P_{\text{drag}} = 14.2 \cdot \text{lbf}$$

Limit drag at V_d

$$n_{sf} := 1.5$$

Factor of Safety

$$P_{\text{drag_ult}} := P_{\text{drag}} \cdot n_{sf}$$

$$P_{\text{drag_ult}} = 21.3 \cdot \text{lbf}$$

Ultimate drag at V_d

Lift

$$A_{\text{lift}} := 3.4 \cdot \text{in} \cdot 73.75 \cdot \text{in}$$

$$A_{\text{lift}} = 250.7 \cdot \text{in}^2$$

Planar area of step (largest)

Coefficient of lift for round tubes relative to airflow varies from near 0 at 0°, to 0.4 at about 60°.

$$C_L := 0.4$$

Coefficient of lift (Max. for a round tube, ~60° to air flow)
(ref. Hoerner, Fig. 18)

$$P_{\text{lift}} := C_L \cdot \frac{\rho}{2} \cdot V_d^2 \cdot A_{\text{lift}}$$

$$P_{\text{lift}} = 69.9 \cdot \text{lbf}$$

Limit lift on step at V_d

$$P_{\text{lift_ult}} := P_{\text{lift}} \cdot n_{sf}$$

$$P_{\text{lift_ult}} = 104.8 \cdot \text{lbf}$$

Ultimate lift on step at V_d

Maintenance Peg Step

5.3 Maintenance Peg Step

The Maintenance Peg Step is located on the inboard side of the aft Quick Release Mounting Provisions. The step weighs less than 1 lb. The inertia and aerodynamic loads are very small.

6.0 STRUCTURAL COMPLIANCE

6.1 Quick Release Maintenance Step

The Quick Release Maintenance Step is similar to the Quick Release Step tested in ER800.01, and uses the same attachments. The step was tested to 1800 lbs and was 72" long. This step is not in a position to be used in flight, and is shorter than the step tested which reduces the bending moment. The Mounting Provisions on the AS350 have been tested to carry a cargo basket with 300 lbs of cargo at ultimate maneuvering load factor. The Maintenance Step installation has been considered and is satisfactory for installation.

6.2 Fixed cabin Step

The aerodynamic drag load is very small and by inspection can be carried by the step assembly and its attachments.

The aerodynamic lift generated by the step is applied similar to the down load tested below, only upward. The downward test is sufficient to demonstrate the lift load.

A high mounted Fixed Step Assembly was fabricated in accordance with drawing 80013. The step was installed on a helicopter in accordance with drawing 80005.

The step was loaded with 1000 lbs of lead shot (40 bags @ 25 lbs), evenly distributed over the surface of the step.

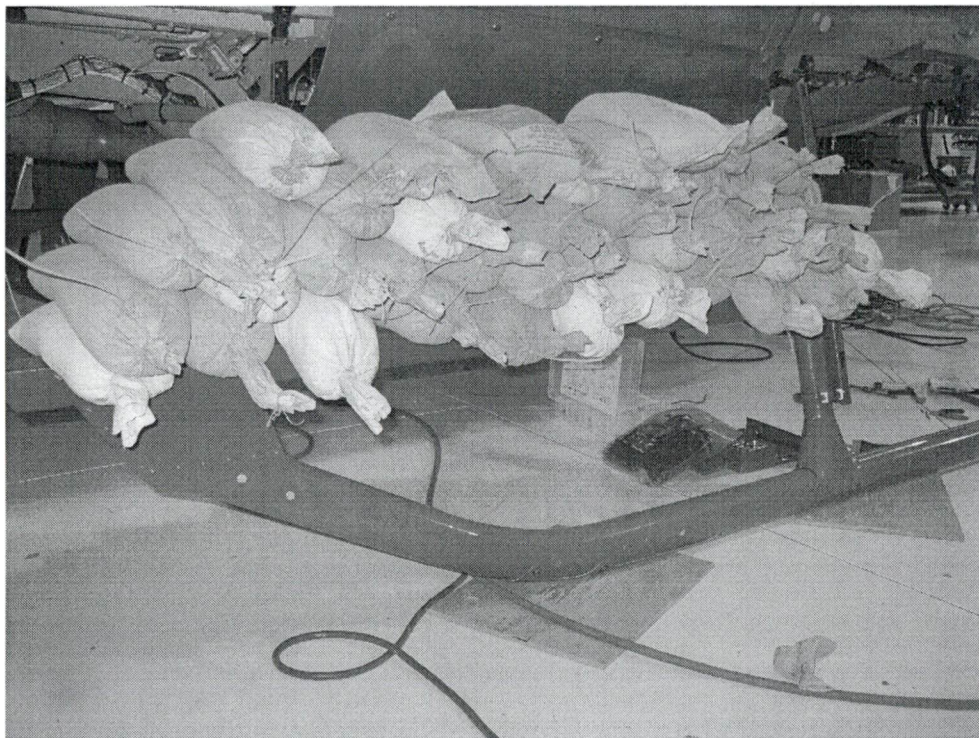


Figure 1 – Ultimate Maneuvering Load on Step Assembly

With the load removed there was no permanent deformation found. The clamp on the aft end did not slip down the cross tube. The fixed cabin step is satisfactory for installation.

6.3 Maintenance Peg Step

The Maintenance Peg Step was installed on a High Mounted Quick Release Beam and the beam installed on a cross tube. The step was stood on and jumped on at the end of the step tube. There was no permanent deformation or failure. The step is satisfactory for installation.

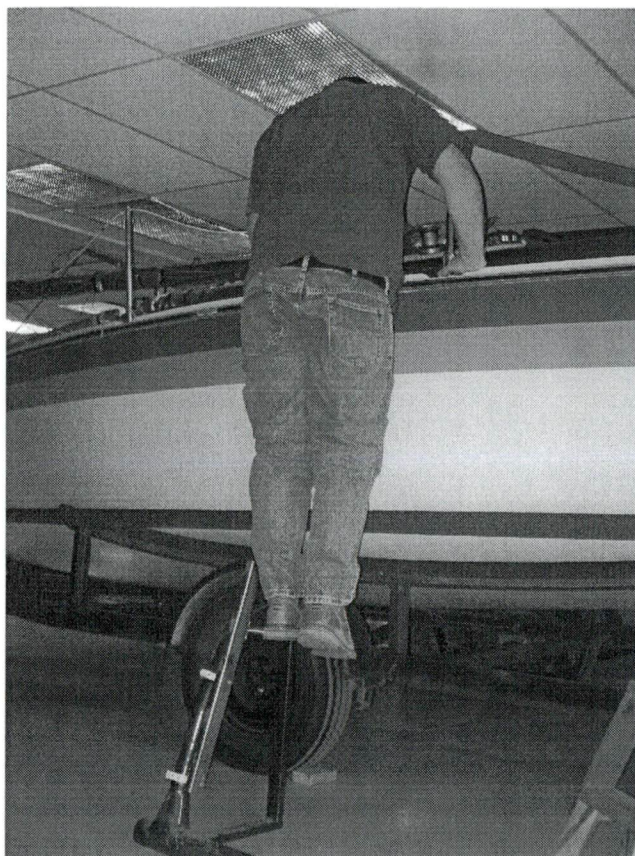


Figure 2 – Peg Step Load Test

7.0 COMPLIANCE WITH 27.251 AND 27.629

The frontal and planar area of the step is significantly smaller than the area of the cargo basket which uses the same mounting provisions. The step section is a closed section so it is torsionally rigid and will not allow flexing between the attachments. The conclusion that can be drawn from these properties is that the aerodynamic loading or turbulence shedding from the step will be significantly less than from the basket, and are expected to be similar to the basic unmodified helicopter.

The effects of vibration (29.251) and flutter (29.629) have been considered over the flight regime of the helicopter, and there is no effect.

Next Time

Hammer

Drift

Punch

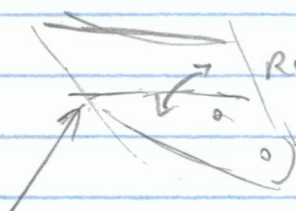
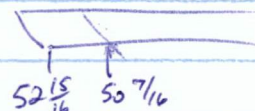
$3/8 + 7/16$ Sockets + wrenches

MINI NUT wrench

- FINISH STEP

- Get length

$52 \frac{15}{16}$

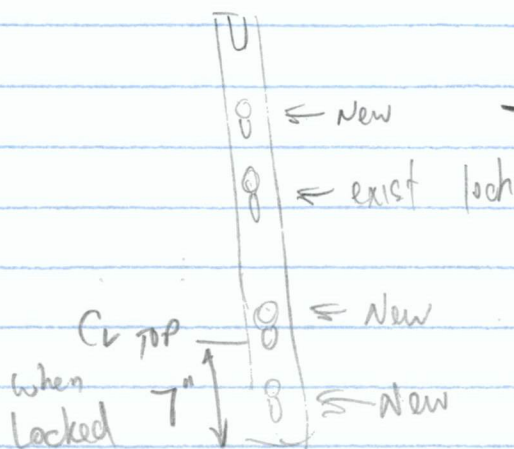


ROTATE TO MATCH FROM PIC.

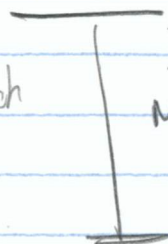
extend off to edge of sheet
channel



ROTATE the 3° calc. \neq



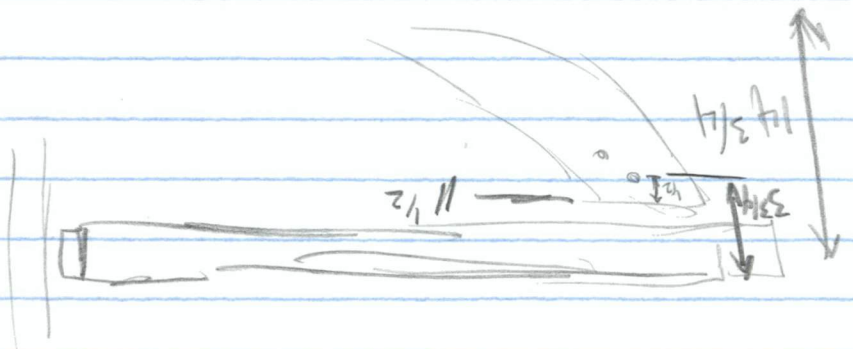
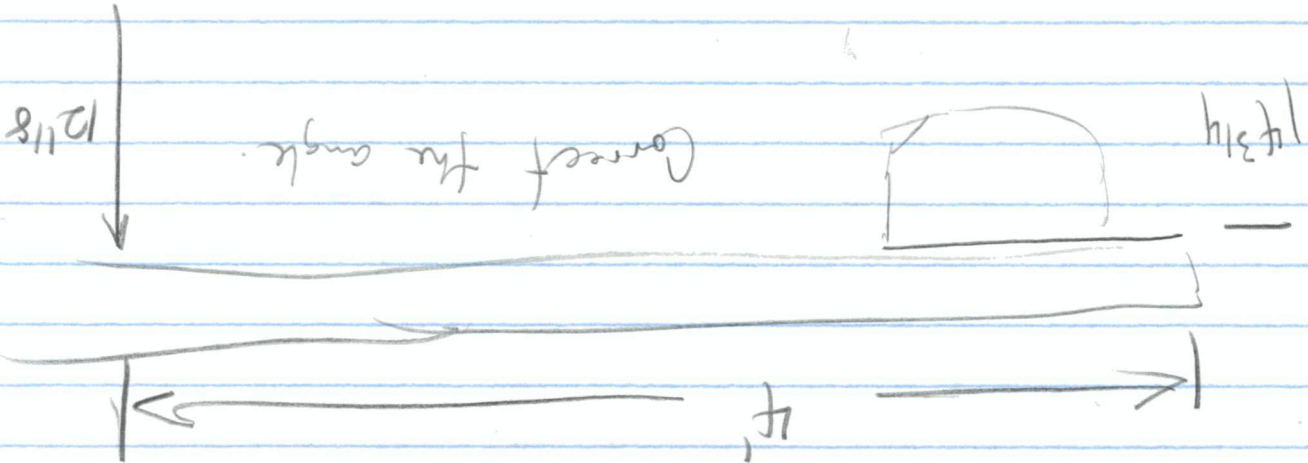
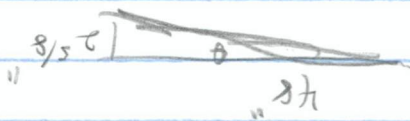
When
locked
7"



* MUST NOT BE ABLE
TO INSTALL BASKET.

3.13°

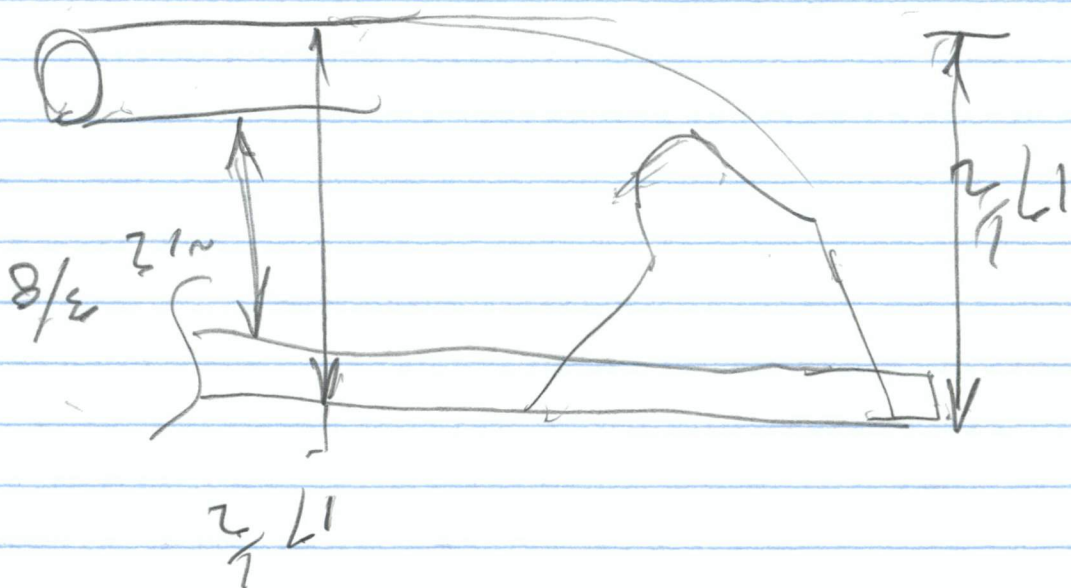
for $\theta = \frac{8.625}{48}$

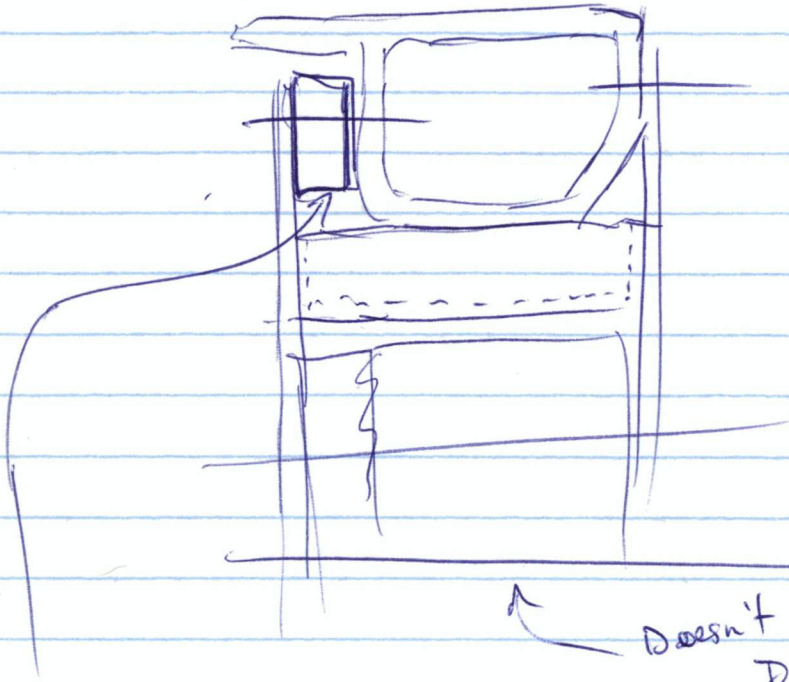


Skid tube



$19^{11/16}$





Doesn't line up in DWG.
Does in real inst.

Filler to bring out to same width as ~~the~~
skid tube (80 mm)

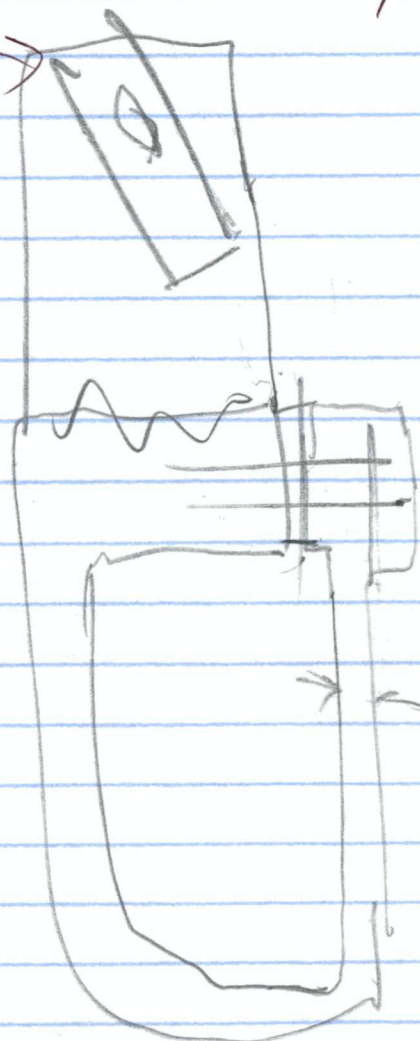
Bell 205/212 Vertical Beams

- Step Key way Hole

- Grind $\frac{1}{4} \times \frac{1}{4}$ STOP
BLOCK TO $\frac{1}{8}$ THICK

AS 350 BEAMS.

BELL 2064/407 BEAM



AERO DESIGN LTD.

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Tel: 403-250-8027

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www.aerodesign.ca

FAXED
07 NOV 2008
3 PM

07 November, 2008

Transport Canada
Aircraft Certification Division
800-1601 Airport Road
Calgary, Alberta
T2E 6Z8

Attn: Greg Oucharek

Your File : C-08-0913

Our File : 827

Re: AS350/AS355 Steps

Greg,

Please find attached the following documents related to this project:

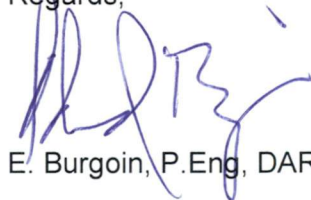
Modification Approval Request Application Form
Compliance Program
Project Summary

MOD827
CP827
PS827

Rev. 0
Rev. 0
Rev. 0

Please extend my delegation to include the paragraphs noted on the attached compliance program.

Regards,



E. Burgoin, P.Eng, DAR 290M

Encl.

AIRWORTHINESS REQUIREMENTS COMPLIANCE PROGRAM

APPLICANT: AERO Design Ltd.
2013 39th Avenue NE
Calgary, Alberta, T2E 6R7

DATE: 7 November, 2008
REV. No. 0

CORRESPONDANCE TO:
(If other than applicant)

MAKE: Eurocopter
MODEL: AS350 & AS355 Series

REGISTRATION: All Applicable
SERIAL No.: All Applicable

NATURE OF WORK: Installation of Quick Release Maintenance Step, Maintenance Peg Step, Fixed Cabin Step

MODEL CERTIFICATION BASIS: FAR 27, Amendment 27-20, plus select sections of later Amendments (AS355NP basis of certification)

MODIFICATION CERTIFICATION BASIS: FAR 27, Amendment 27-20, plus select sections of later Amendments (AS355NP basis of certification)

Airworthiness Requirement	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
Subpart B – Flight					
27.29	Empty Weight and Corresponding C of G	Data specified on inst'n drawing		X	
27.251	Vibration	Statement in Report		**	
Subpart C – Strength Requirements					
27.301	Loads – Air Drag/Lift Loads	Analysis		X	
27.301	Loads – Inertia Loads	Compliance with 27.337 and 27.561		X	
27.303	Factor of Safety	Analysis		X	
27.305	Strength and Deformation	Analysis and Test iaw AC 43.13-1B		X	
27.307	Proof of Structure	Analysis and Test iaw AC 43.13-1B		X	
27.337(a)	Limit Maneuvering Load Factor – Positive	Analysis and Test iaw AC 43.13-1B		X	Critical load factor in downward direction.
27.561	Emergency Landing Conditions	N/A		X	Step is located below cabin
Subpart D – Design and Construction					
27.601	Design	Drawings		X	Design is conventional.
27.603	Materials	Drawings		X	Materials used are specified in Mil-Hdbk-5J.
27.605	Fabrication Methods	Drawings		X	Design is conventional.
27.609	Protection of Structure	Drawings		X	
27.611	Inspection Provisions	Drawings		X	Design is easy to inspect.
27.613	Material Strength Properties and Design Values	Values used as per Mil-Hdbk-5J		X	
27.625	Fitting Factor	Analysis		X	
27.629	Flutter	Statement in Report		**	
27.1387	Position Light System Dihedral Angles	N/A			No change from Type Approval.
27.1401	Anticollision Light System	N/A			No change from Type Approval.
27.1529	Instructions for Continued Airworthiness	ICA Provided	X		

AIRWORTHINESS REQUIREMENTS
COMPLIANCE PROGRAM

Airworthiness Requirement	Subject for Compliance or Documentary Proof	Form of Substantiation	DOT	DAR	Comments
27.1581	Rotorcraft Flight Manual	FMS for Cargo Basket Revised	X		Installation/Removal instructions in Cargo Basket FMS for Quick Release Step

Items marked ** indicate chapters where extension of delegation is requested.

Title: Step Installatoinis
Approval: STC
Manufacture: Mfd by Aero Design (amend Approved Product List)
Customer: AERO Design Ltd.
Type and Model: Eurocopter AS350 & AS355 Series

Definition Of Change:**Description:**

Installation of the Quick Release Baskets requires the removal of existing flight steps for accessing the cabin. In order to aid access to the cabin, steps are installed that accommodate the cargo basket installations. A fixed step running from the forward tip of the skid tube to the forward cross tube is installed. A high and low configuration are provided, the low is required when the large cargo basket is installed.

When the quick release mounting provisions are installed, a maintenance step is useful for access to the engine area. A step that mounts on the cargo basket provisions is provided. With the high mounting provisions installed, the step can be stowed at the bottom of the beam so it can travel with the helicopter without taking up space in the cabin or in the basket.

A peg step mounted on the aft cross tube is available as an option from Eurocopter and other manufacturers. Operators with Quick Release Cargo Baskets desire a step that can be attached to the inboard side of the quick release mounting provisions. The installation bolts to the inside of the aft mounting beam.

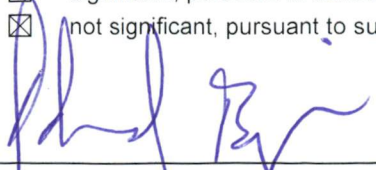
Primary Changes to the Aeronautical Product:

Installation of high or low fixed cabin step; Installation of quick release maintenance step; installation of peg maintenance step.

Secondary Changes to the Aeronautical Product (Required as consequence of primary changes):**Other Relevant Modifications to the Aeronautical Product (Which impact on this change):**


Quick Release Mounting Provisions in accordance with STC SH08-16 are required.

CHANGED PRODUCT RULE (CPR) DECISION RECORD

NAPA No.:	
Step 1: Identify the proposed change to the aeronautical product. (Section 4.1 of AC 500-016)	The changes are as previously described.
Step 2: Is the change substantial? (Section 4.2 of AC 500-016)	<input type="checkbox"/> Yes A new type certificate is required. CPR Decision Process is Closed . <input checked="" type="checkbox"/> No Proceed to Step 3
Step 3: Will the latest standards be used? (Section 4.3 of AC 500-016)	<input type="checkbox"/> Yes Certification basis to use latest standards. CPR Decision Process is Closed . <input checked="" type="checkbox"/> No Proceed to Step 4.
Step 4: Is the proposed change significant? (Section 4.4 of AC 500-016)	<input type="checkbox"/> Yes Proceed to Decision. <input checked="" type="checkbox"/> No Compliance may be shown to earlier standards. Certification basis to be defined and documented as indicated (below). CPR Decision Process is Closed .
Decision: Will the latest standards be used?	<input type="checkbox"/> Yes Certification basis to use latest standards. CPR Decision Process is Closed . <input checked="" type="checkbox"/> No Proceed to Step 5, addressing each area separately (see below).
Identification of Affected Areas:	The area(s) affected by the proposed change have been detailed in Compliance Program: CP827
Note: A delegate may develop a proposal for the Yes/No decision of Step 6, however, TCCA will make the final determination.	
Area:	
Step 5: Is this area affected by the proposed change? (Section 6.1 of AC 500-016)	<input type="checkbox"/> Yes Proceed to Step 6. <input checked="" type="checkbox"/> No Compliance with the latest standards is not required. Compliance may be shown to earlier standards. Certification basis defined or documented as indicated below.
Step 6: Are the latest standards practical and do they contribute materially to the level of safety? (Section 6.2 of AC 500-016)	<input type="checkbox"/> Yes Certification basis to be established using latest standards. <input checked="" type="checkbox"/> No Compliance with the latest standards is not required. Compliance may be shown to earlier standards. Certification Basis defined or documented as indicated in below.
<input type="checkbox"/> Continuation Sheet(s) Attached	Note: Several standards may apply to each area and the assessment may differ from standard to standard. Indicate Yes if compliance with any latest standard(s) will be required. Indicate No only if no later standards are to be applied.
Certification Basis	The certification basis is as follows or as detailed in the listed document(s): Eurocopter AS350 - TCDS H-83; AS355 - TCDS H-87; FAR 27, Amendment 27-20, plus select sections of later Amendments (AS355NP basis of certification)
Under the delegated authority, I have examined the change in type design listed above according to established procedures and hereby determine, to the best of my knowledge and belief, that it is. (check one)	
<input type="checkbox"/> substantial, pursuant to subsection 511.14 or 513.14 of the CARs <input type="checkbox"/> significant, pursuant to subsection 511.13(3) or 513.07(3) of the CARs <input checked="" type="checkbox"/> not significant, pursuant to subsection 511.13(3) or 513.07(3) of the CARs	
	
E. Burgoin, P. Eng., DAR 290M	07 November, 2008 Date

MODIFICATION APPROVAL REQUEST APPLICATION FORM

MOD827, Rev. 0

1. NAME AND ADDRESS OF APPLICANT:		2. IDENTIFICATION OF PRODUCT				
AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		MAKE: Eurocopter		MODEL: AS350		
ALL CORRESPONDANCE TO: AERO Design Ltd. 2013 - 39th Avenue NE Calgary, Alberta T2E 6R7		SERIAL No.: All Eligible		REGISTRATION: All Eligible		
3. REQUEST FOR:						
A. SUPPLEMENTAL TYPE CERTIFICATE (STC)		<input checked="" type="checkbox"/>				
B. STC/STA REVISION		<input type="checkbox"/>		STC/STA No.		
C. LIMITED SUPPLEMENTAL TYPE CERTIFICATE (LSTC)		<input type="checkbox"/>				
D. LIMITED STC/STA REVISION		<input type="checkbox"/>		LSTC/LSTA No.		
E. F.A.A. SUPPLEMENTAL TYPE CERTIFICATE		<input type="checkbox"/>				
F. F.A.A. STC REVISION		<input type="checkbox"/>		STC No.		
G. FAMILIARIZATION OF F.A.A. STC		<input type="checkbox"/>		STC No.		
H. REPAIR DESIGN APPROVAL (RDC)		<input type="checkbox"/>				
I. PARTS DESIGN APPROVAL (PDA)		<input type="checkbox"/>				
4. TITLE OF MODIFICATION OR REPAIR: Step Installations						
5. BRIEF DESCRIPTION OF MODIFICATION OR REPAIR: Installation of various step products: Quick Release Maintenance Step; Peg Maintenance Step; Fixed Cabin Step						
6. APPLICABLE TYPE APPROVAL (TA) OR TYPE CERTIFICATE (TC) DOCUMENTS:						
A. TA NO. H-83, H-87 B. TC No. C. OTHER						
7. PROPOSED BASIS OF APPROVAL:						
A. SAME AS TA <input checked="" type="checkbox"/> B. SAME AS TC <input type="checkbox"/> C. OTHER <input type="checkbox"/> (Please specify)						
8. DOCUMENTATION CHECKLIST		REQUIRED		FOR DOT USE ONLY		
				RECEIVED		
		YES	NO	YES	NO	DATE
COMPLIANCE PROGRAM		X				
MASTER DRAWING LIST		X				
FLIGHT MANUAL SUPPLEMENT		X				
MAINTENANCE MANUAL SUPPLEMENT			X			
INSTRUCTIONS FOR CONTINUING AIRWORTHINESS		X				
ENGINEERING REPORTS		X				
DESIGN DRAWINGS			X			
MANUFACTURE DRAWINGS & INSTALLATION INSTRUCTIONS		X				
ELECTRICAL LOAD ANALYSIS			X			
DRAFT STC, LSTC OR RDA			X			
WEIGHT AND MOMENT CHANGE		X				
FLIGHT TEST DATA			X			
OTHER (Specify)						
9. APPLICANT'S REMARKS:						
10. In addition to the payment of Aircraft Certification approval fees as prescribed in Canadian Aviation Regulations (CAR) Section 104, I agree to reimburse Transport Canada incremental expenses as in Aviation Regulation Directive No. 3, or equivalent, as applicable. For further details governing cost recovery, refer to AMA 513/4.						
PER: 		Consultant		7 November, 2008		
SIGNATURE OF APPLICANTS		TITLE		DATE		
11.						
SIGNATURE OF REGIONAL ENGINEER		DATE				